

THE NEW WORLD GENUS *CHROMOLEPIDA* COLE
(DIPTERA: THEREVIDAE: THEREVINAЕ)

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Abstract.—Species of the genus *Chromolepida* Cole are confined to western North American and northern South America. The species are revised, a phylogeny is hypothesized, and a key to the species is provided. Two species from México, *Chromolepida clavitibia* Webb and Irwin and *C. nigra* Webb and Irwin, are described as new to science.

Key Words: Diptera, stiletto flies, Therevidae, *Chromolepida*, New World revision, phylogeny, species keys, descriptions, distributions

This paper is the fifth of a series (Webb and Irwin 1988, Webb and Irwin 1991a, b, c) revising the species of the genera treated in the monograph of the Nearctic genera of Therevidae. A key to the species of *Chromolepida* Cole is provided along with species descriptions and distributions.

The morphological terminology used for the male terminalia was originally defined and described by Lyneborg (1968) and subsequently modified by Lyneborg (1972, 1976, 1978) and Irwin (1977a, b). The female terminalia terminology was defined and described by Irwin (1976). Other morphological features are described with terminology set out in the "Manual of Nearctic Diptera" (McAlpine 1981). The range for each setal count is followed by the mode. Setal counts were taken from the left side of the specimen and from the entire posterior margin of the scutellum.

Each specimen was assigned a unique THEREVIDAE/M. E. IRWIN/SPECIMEN number. This number is used to associate the ecological and label data with a given specimen, and when referred to herein, is printed in italics. The data are intended to be incorporated into an auto-

mated data management system originally designed by Rauch (1970).

To conserve space and include as much information as possible about each specimen, a format adopted from Irwin (1983) is used in the "Specimens Examined" section of each species. Many of the terms used there were defined by Stuckenberg and Irwin (1973). In the presentation of repetitive locality data, a semicolon terminates one series of specimens and signals the beginning of the next, thus, data not repeated in a series are the same as those of preceding series.

PHYLOGENETIC RELATIONSHIPS

The genus *Chromolepida* belongs to the *Cyclotellus* group of therevids, along with *Cyclotellus* Walker, *Ozodiceromyia* Bigot, and an undescribed genus from Chile. This group is characterized by rather bulbous gonocoxites. The black, glossy calli on the face ventral to the antennal bases and the appressed, iridescent, silver green scales on the thorax and abdomen separate *Chromolepida* as a monophyletic genus within this group.

The cladogram (Fig. 1) represents the relationship we hypothesize for the five spe-

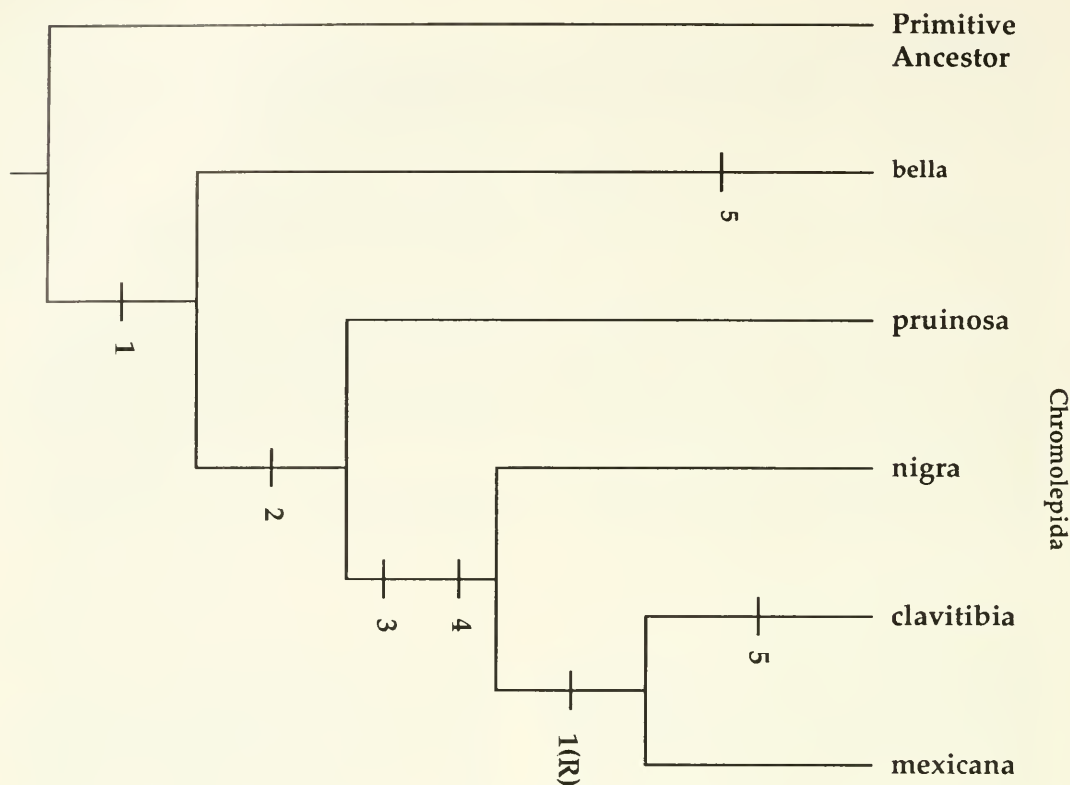


Fig. 1. Cladogram showing the hypothesized phylogeny of the species of *Chromolepida*. Numbers on the branches refer to apomorphic alternatives of characteristics listed in Table 1. (R) indicates a reversal in a character state.

cies of *Chromolepida* based on characteristics given in Table 1. Although no hypothesized generic-level phylogeny has been attempted for the Therevidae, our work to date strongly suggests that the *Cyclotelus* group is more derived than members of the genus *Phycus* (*Phycus* group) and the genus *Dialineura* (*Thereva* group). The determination of the plesiomorphic condition, then, was based on an examination of the characteristics found in New World species of *Dialineura* and *Phycus*.

In these genera, the plesiomorphic condition for Characters 1, 4, and 5 was found in all species. Character 2. The plesiomorphic state of a narrow, simple gonostylus was found in most species. Only in the one species of *Dialineura* was a lateral projection found. Character 3. The anterior

margin of the male dorsal apodeme of the aedeagus generally has a single transverse attachment to the anterior margin of the hypoproct. Only in *Phycus frontalis* is the dorsal apodeme bifurcate, forming a double attachment to the hypoproct.

The character matrix is given in Table 2. A heuristic search of this matrix using PAUP (Version 3.1.1, Swofford 1993) resulted in a single tree of seven steps (consistency index = 0.714, retention index = 0.750). This cladogram was rooted from a hypothetical ancestor possessing the primitive state of all characteristics.

Chromolepida bella formed a clade possessing a simple gonostylus (Fig. 4) without a lateral projection, although it does possess the most specialized and distinctive distiphallus which is more elongate and re-

Table 1. Character states for *Chromolepida*.

Plesiomorphic	Apomorphic
1. Female frontal setae present	Female frontal setae absent
2. Male gonostylus simple	Male gonostylus with lateral projection
3. Male dorsal apodeme truncate or slightly emarginate anteriorly	Male dorsal apodeme deeply emarginate anteriorly
4. Male ventral apodeme truncate or slightly emarginate anteriorly	Male ventral apodeme pointed, extended anteriorly
5. Endophallus simple	Endophallus recurved

curved than all other species of *Chromolepida*. This species currently ranges from California to southern Washington, east to Idaho, northern Utah, and Nevada.

Chromolepida pruinosa formed a southern, neotropical clade separated from *C. bella* by the possession of a lateral projection on the male gonostylus and from *C. nigra*, *C. clavitibia*, and *C. mexicana* in retaining the more primitive characteristics of the male dorsal and ventral apodemes of the aedeagus. It currently ranges from Guyana to Colombia, north to Nicaragua.

Chromolepida nigra, *C. clavitibia*, and *C. mexicana* form a clade defined by the male dorsal apodeme of the aedeagus being deeply emarginate anteriorly and the anterior apodeme of the aedeagus being pointed and extended anteriorly. These species are centered in Mexico and the southwestern United States with *C. nigra* found in southern Mexico, but not sympatric with *C. pruinosa*. *Chromolepida clavitibia* and *C. mexicana* form the final clade based on the presence of frontal setae in the females of both species. *Chromolepida clavitibia* apparently

separated from *C. mexicana* and is currently restricted to the southern tip of Baja California de Sur, with *C. mexicana* ranging from northern Mexico to southern California, Arizona, New Mexico, western Texas, and southern Colorado, but not sympatric with *C. bella*.

Chromolepida may be separated from other Nearctic therevids by using the keys to the genera of Nearctic Therevidae in Irwin and Lyneborg (1981a, b). No key to the genera of Neotropical Therevidae is available at this time; however, all species of *Chromolepida* have a pair of shiny, black, raised calli on the upper face below the antennal bases, which is unique to species of this genus.

Chromolepida Cole

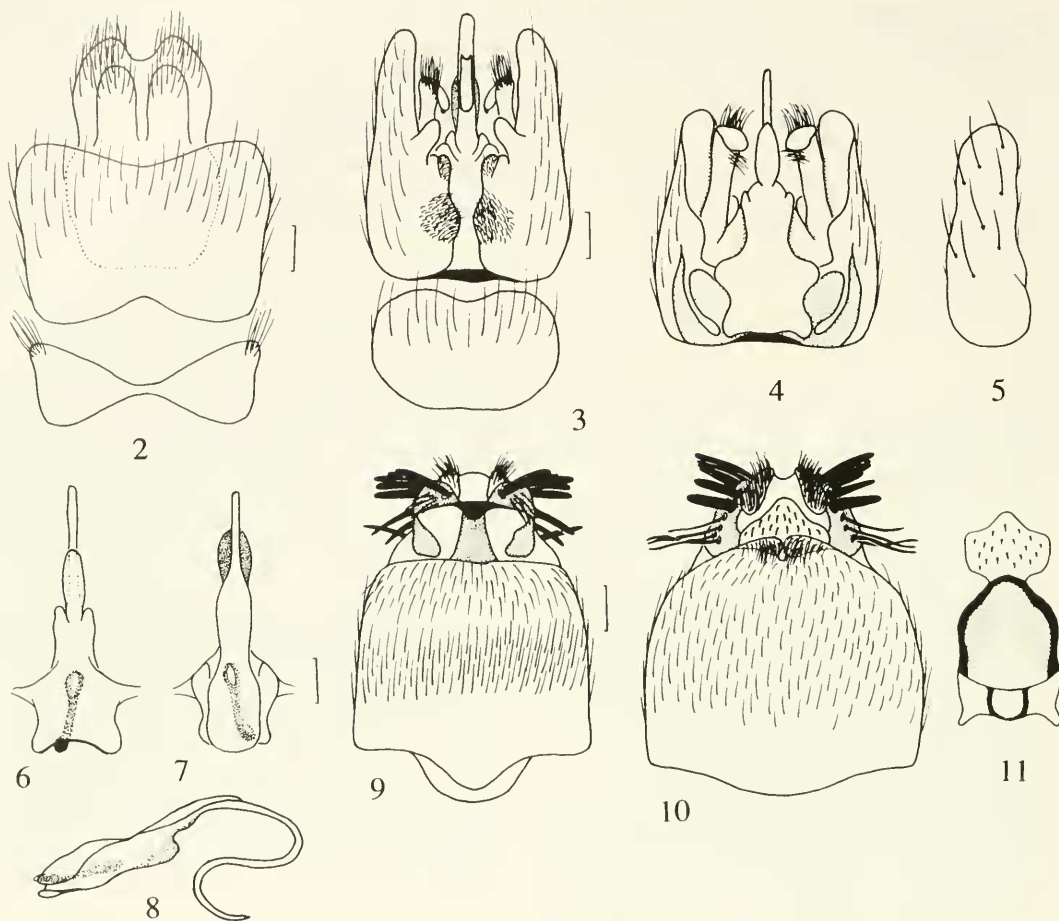
Chromolepida Cole (1923: 23). Type species: *Psilocephala pruinosa* Coquillett (1904: 91) by original designation.

Derivation of name.—*chroma* (Greek) = color; *lepido* (Greek) = scale.

Diagnosis.—*Chromolepida* is a member of the *Cyclotelus* group of therevid genera. Beyond *Chromolepida*, this group includes *Cyclotelus* Walker, *Ozodiceromya* Bigot, and an undescribed genus from Chile. Species in this group of genera can be characterized by the following: middle coxae without setae on posterior surface; male gonocoxites often strongly fused ventrally, forming a rather compact capsule; dorsal apodeme of male aedeagus weakly to strongly joined to internal dorsal portion of gonocoxite (= par-

Table 2. Character matrix for *Chromolepida*.

Taxa	Character matrix				
	1	2	3	4	5
<i>Chromolepida bella</i>	2	1	1	1	2
<i>Chromolepida clavitibia</i>	1	2	2	2	2
<i>Chromolepida mexicana</i>	1	2	2	2	1
<i>Chromolepida nigra</i>	2	2	2	2	1
<i>Chromolepida pruinosa</i>	2	2	1	1	1



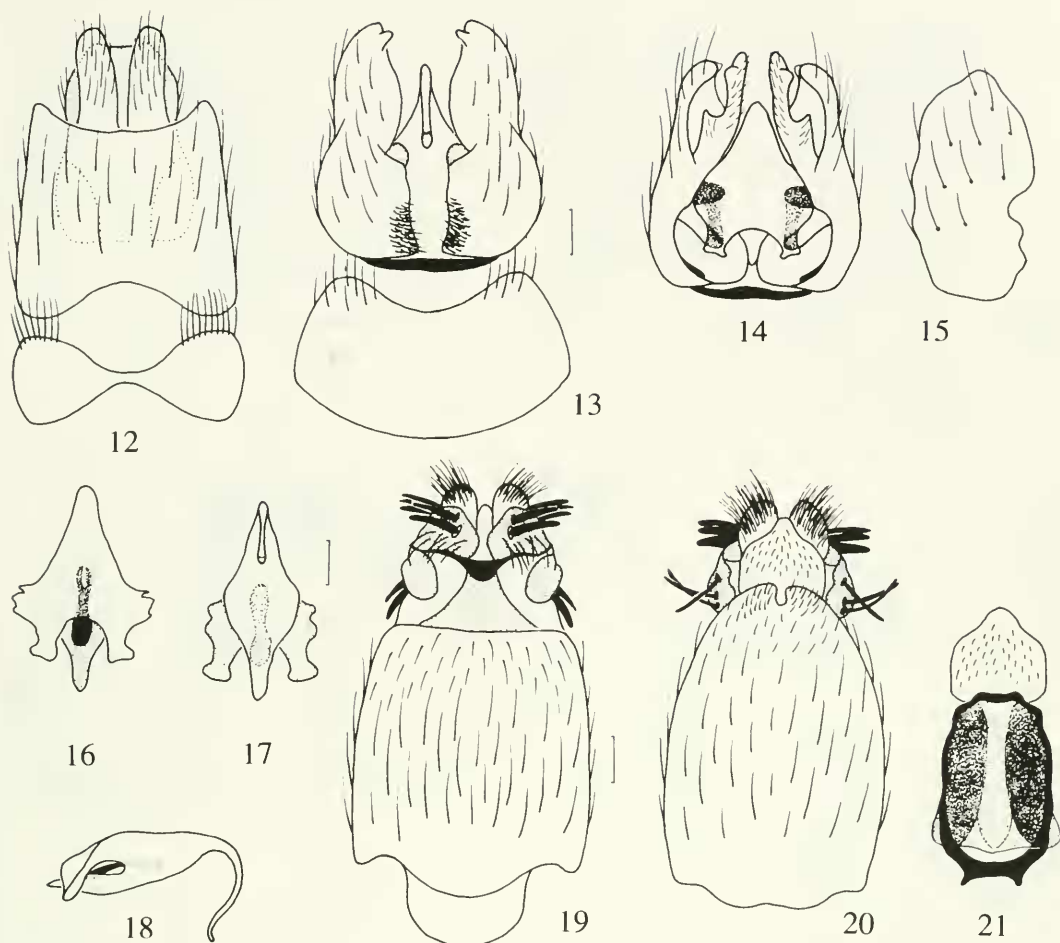
Figs. 2-11. *Chromolepida bella* (9177, 9179) 2. Male tergite 8, epandrium, cercus, and hypoproct, dorsal view. 3. Male sternite 8, gonocoxites and gonostylus, ventral view. 4. Male gonocoxites and gonostylus, dorsal view. 5. Male gonocoxite, lateral view. 6. Male aedeagus, dorsal view. 7. Male aedeagus, ventral view. 8. Male aedeagus, lateral view. 9. Female terminalia, dorsal view. 10. Female terminalia, ventral view. 11. Female furca, dorsal view. Scale = 0.1 mm, unless otherwise indicated.

ameral process); male hypandrium small or absent; male gonocoxites usually strongly fused with lateral margins of epandrium; posterior parameral processes composed of pair of nonarticulated projections; and male distiphallus of aedeagus often curved, extending posteroventrally beyond gonocoxites. *Chromolepida* is separated from the other genera of the *Cyclotelus* group in having a pair of shiny, black, raised calli on the face just below the antennal bases, and the thorax and abdomen clothed with ap-

pressed iridescent silver green scales in addition to normal setae.

Small to medium-sized flies.

Description of male and female.—*Head*: Eyes of male holoptic, ommatidia on ventral third smaller; eyes of female dichoptic, all ommatidia of similar size; antenna (Fig. 42), length 0.9–1.7 times head length; scape cylindrical; pedicel cylindrical to ovate; flagellum awl-shaped, tapered apically; style subapical, two-segmented, including minute apical spine; frons in female (Fig. 52)

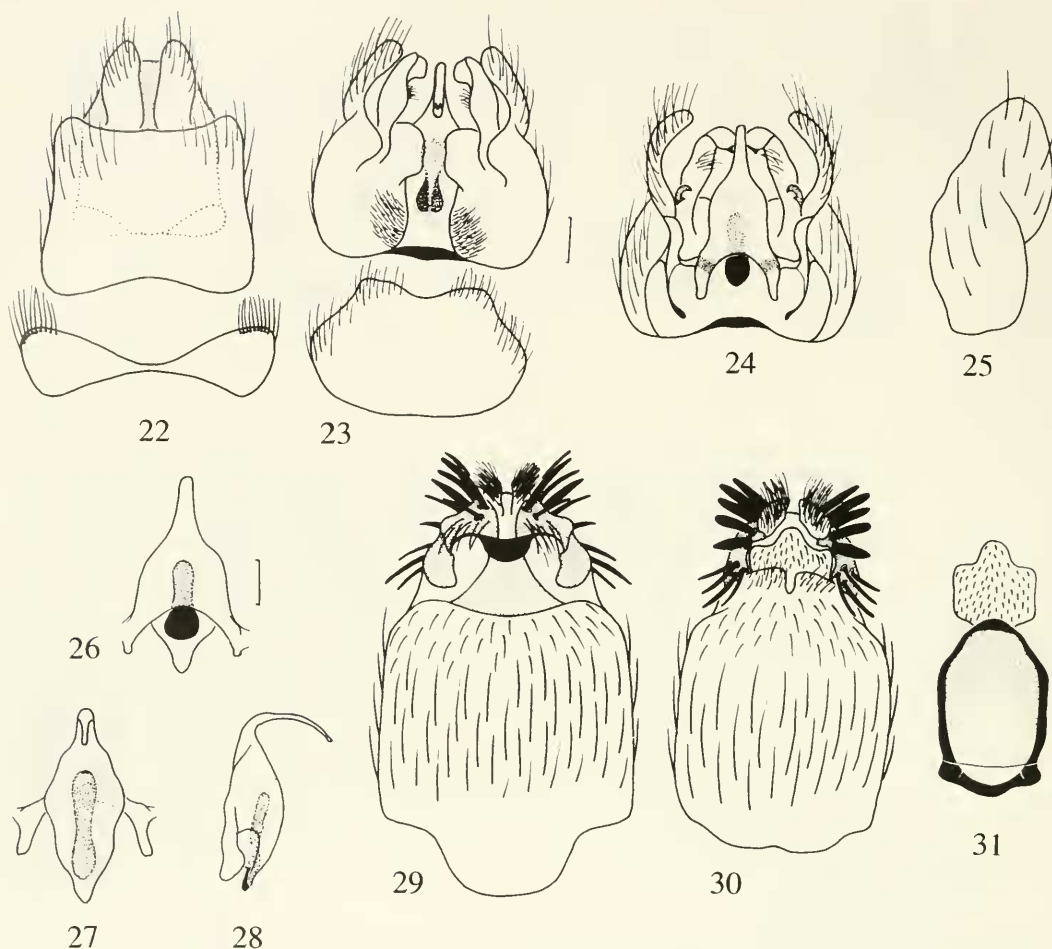


Figs. 12-21. *Chromolepida clavitibia* (8812, 8805) 12. Male tergite 8, epandrium, cercus, and hypoproct, dorsal view. 13. Male sternite 8, gonocoxites and gonostylus, ventral view. 14. Male gonocoxites and gonostylus, dorsal view. 15. Male gonocoxite, lateral view. 16. Male aedeagus, dorsal view. 17. Male aedeagus, ventral view. 18. Male aedeagus, lateral view. 19. Female terminalia, dorsal view. 20. Female terminalia, ventral view. 21. Female furca, dorsal view. Scale = 0.1 mm, unless otherwise indicated.

broad, lateral margins convergent dorsally; frontal calli glossy, with distinct area of black pile dorsolateral to antennal bases; parafacial broad with enlarged, glossy parafacial calli; maxillary palpus one-segmented (Fig. 43), cylindrical to slightly clavate, rounded apically. Setae of two types (filiform, and appressed, iridescent, silver green scale-like), scattered filiform on female frons; short, filiform on antenna, abundant, filiform on maxillary palpus, absent on eyes, parafacial, clypeus and generally on male frons. Genal

setae white, filiform and silver green scale-like, ventral projection of gena with concentration of short, black, filiform setae. Macrosetae thick, filiform, moderately long, scattered on apex of scape.

Thorax: Macrosetae: np 3-4, sa 1, pa 1, dc 0, sc 4. Postpronotal lobe concolorous with thorax. Vittae indistinct. Setae of 2 types: filiform, on prosternum, mesonotum, propleuron, anepisternum, and dorsal third of katepisternum, and appressed, iridescent, silver-green scale-like on mesonotum, pro-

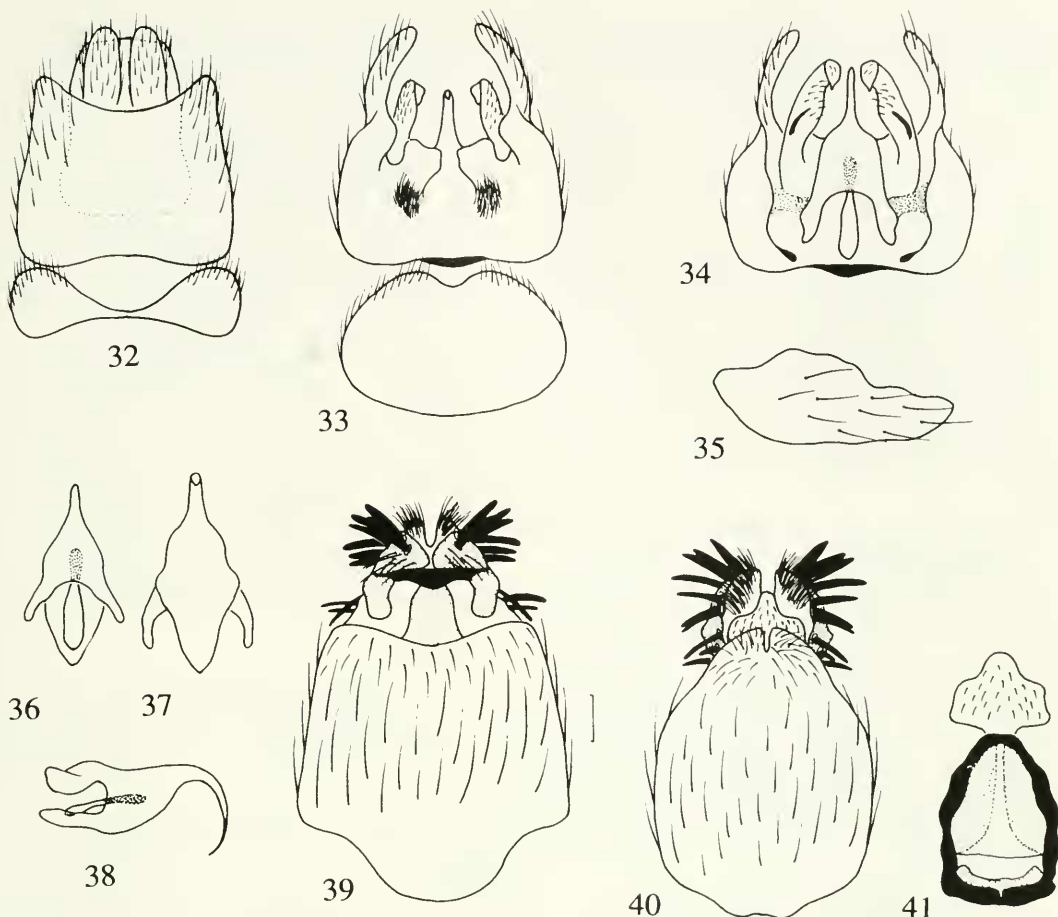


Figs. 22-31. *Chromolepida mexicana* (8814, 9025) 22. Male tergite 8, epandrium, cercus, and hypoproct, dorsal view. 23. Male sternite 8, gonocoxites and gonostylus, ventral view. 24. Male gonocoxites and gonostylus, dorsal view. 25. Male gonocoxite, lateral view. 26. Male aedeagus, dorsal view. 27. Male aedeagus, ventral view. 28. Male aedeagus, lateral view. 29. Female terminalia, dorsal view. 30. Female terminalia, ventral view. 31. Female furca, dorsal view. Scale = 0.1 mm, unless otherwise indicated.

pleuron, anepisternum and dorsal third of katepisternum, absent on remaining pleural sclerites. Wing (Fig. 44) hyaline to opaque, often patterned; veins generally pale brown; pterostigma indistinct to brown; setulae absent; length of R_4 0.8-1.3 times R_5 ; length of cell r_4 1.7-4.0 times width; veins M_1 , M_2 , and M_3 originate separately from apical margin of discal cell; cell m_3 open; discal cell acute basally; cell cup closed with short petiole; m-cu/r-m subequal. Legs. Coxae moderately long. Setae of two types: fili-

form, and appressed, iridescent, silver-green scale-like, on anterior half of fore and middle coxae and over entire hind coxa, over entire femora, filiform on tibiae. Macrosetae dark brown, apical, 2 on fore and middle coxae, 3 on hind coxa.

Abdomen: Rather narrow, gradually tapering from base to apex, male dorsum flattened, female dorsum convex. Setae filiform, appressed, iridescent, silver green scale-like or lanceolate. Male terminalia (Figs. 2-8, 12-18, 22-28, 32-38, 42-51).



Figs. 32-41. *Chromolepida nigra* (8815, 9239) 32. Male tergite 8, epandrium, cercus, and hypoproct, dorsal view. 33. Male sternite 8, gonocoxites and gonostylus, ventral view. 34. Male gonocoxites and gonostylus, dorsal view. 35. Male gonocoxite, lateral view. 36. Male aedeagus, dorsal view. 37. Male aedeagus, ventral view. 38. Male aedeagus, lateral view. 39. Female terminalia, dorsal view. 40. Female terminalia, ventral view. 41. Female furca, dorsal view. Scale = 0.1 mm, unless otherwise indicated.

Tergite 8 large, about as wide as epandrium, posterior deeply emarginate. Sternite 8 somewhat reduced, posterior emarginate. Epandrium about two-thirds as long medially as wide, posterolateral corners rounded; cercus free, well sclerotized, ending before or slightly beyond hypoproct; hypoproct attached to membranous subepandrial plate, which extends anteriorly and attaches to anterior margin of aedeagal dorsal apodeme. Hypandrium greatly reduced, narrow. Gonocoxite bulbous, sides broad in lateral view; in ventral view, gonocoxite with medial

patch of short setae. Parameral apodeme reduced. Gonostylus elongate, with or without lateral projection. Aedeagus attached to parameres and gonocoxites; a long, weak, membranous bridge stretching from distal corners of dorsal apodeme to midsection of paramere and a stronger attachment between ventral lobes of gonocoxites and ventral surface of aedeagus; distiphallus sclerotized, variable; ventral apodeme extends parallel to dorsal apodeme, anterior margin variable; ejaculatory apodeme about as long as ventral apodeme, slender. Female ter-

minalia (Figs. 9–11, 19–21, 29–31, 39–41, 53–55). Tergite 8 subrectangular, longer than wide, with broadly concave posterior margin; setae black, elongate, scattered. Tergite 9+10 fused, with strong acanthophorites. Cercus triangular, membranous, with numerous, fine, short setae projecting posteriorly. Sternite 8 large, longer than wide; posterior emarginate; setae black, elongate, scattered. Sternite 9 greatly modified, invaginated above sternite 8 to form internal sclerotized furca which is closed anteriorly; ventral surface of furca covered with lightly sclerotized membrane. Sternite 10 membranous, subtriangular with short, thick setae.

Immature stages.—Unknown.

Biology.—Adults of *Chromolepida* have been collected from flowers of a variety of plants, a reseeded range, a fen area, oak-chapparral habitats, and coastal dunes.

Distribution (Figs. 56–58).—*Chromolepida* has been collected from South America (Guyana, Venezuela, Colombia) and in North America from Costa Rica to the state of Washington and eastward to Utah, Colorado and western Texas.

KEY TO SPECIES OF *CHROMOLEPIDA*

1. Halter dark brown 2
- Halter yellow 4
2. Femora dark reddish brown to black 3
- Femora dark yellow ... *mexicana* Cole (females)
3. Fore tibia distinctly clavate
... *clavitibia* Webb and Irwin, n. sp. (males and females)
- Fore tibia cylindrical
... *nigra* Webb and Irwin, n. sp. (females)
4. Wing membrane without apical band; male distiphallus elongate, distinctly recurved (Fig. 8); male gonostylus lacking lateral projection (Fig. 4); male frontal setae absent
... *bella* Cole (males and females)
- Wing membrane (Fig. 44) with smoky brown

- to black apical band; male distiphallus short to moderately long, if recurved, only slightly (Figs. 18, 28, 38, 51); male gonostylus with lateral projection (Figs. 14, 24, 34, 47); frontal setae black 5
5. Costal and subcostal cells of wing dark yellow; male distiphallus short, sinuate (Fig. 51) ...
... *pruinosa* (Coquillett) (males and females)
- Costal and subcostal cells of wing hyaline; distiphallus elongate, bent at right angle to plane of aedeagus (Figs. 28, 38) 6
6. Gonocoxite in lateral view (Fig. 25) with distal half broad; length of fore femur to length of scape 2.4 ± 0.2 ; length of fore tibia to length of scape 2.5 ± 0.2 ; length of hind femur to length of scape 3.5 ± 0.4
... *mexicana* Cole (males)
- Gonocoxite in lateral view (Fig. 35) with distal half reduced, tapered apically; length of fore femur to length of scape 1.7 ± 0.2 ; length of fore tibia to length of scape 1.8 ± 0.2 ; length of hind femur to length of scape 2.4 ± 0.3 ...
... *nigra* Webb and Irwin, n. sp. (males)

Chromolepida bella Cole

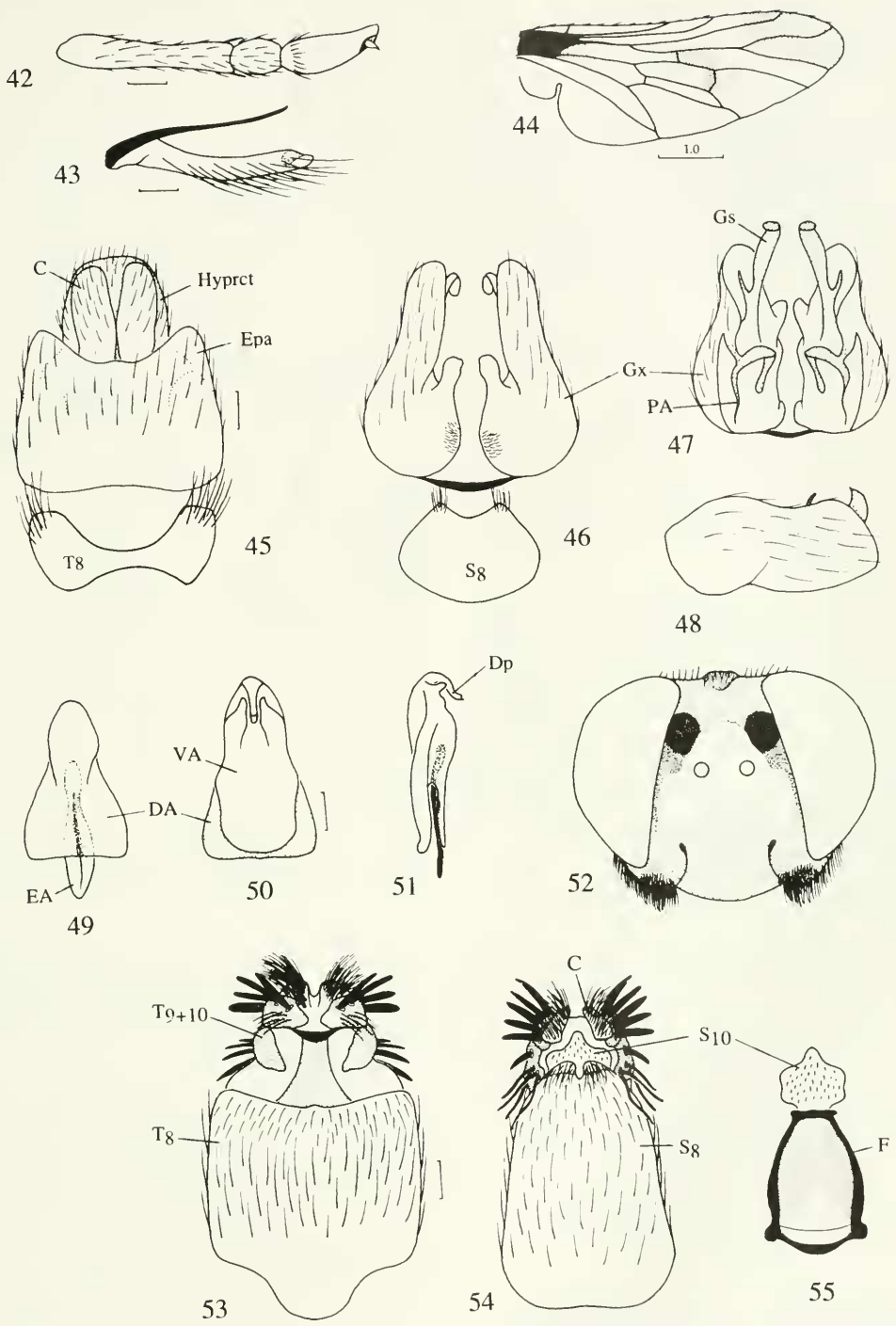
Chromolepida bella Cole (1923: 24); Cole (1965: 350); Irwin and Lyneborg (1981a: 260).

Derivation of name.—*bellus* (Latin) = beautiful.

Diagnosis.—Females of *Chromolepida bella*, like *C. nigra* and *C. pruinosa*, lack frontal setae. The species is separated from *C. nigra* in having the wing membrane pale yellow, concolorous; the anterior margin of the dorsal apodeme of the male aedeagus truncate; and the females have yellow halteres and femora. *Chromolepida bella*, unlike *C. pruinosa*, has pale yellow, concolorous wing membranes; the male gonostylus lacks a lateral projection; and the male distiphallus is elongate and sinuate.

Redescription of holotype male (9177).—Body length 4.0 mm.

Figs. 42–55. *Chromolepida pruinosa* (9218, 8316) 42. Male antenna, lateral view. 43. Male maxillary palpus, lateral view. 44. Male wing, dorsal view. 45. Male tergite 8, epandrium, cercus, and hypoproct, dorsal view. 46. Male sternite 8, gonocoxites and gonostylus, ventral view. 47. Male gonocoxites and gonostylus, dorsal view (aedeagal complex removed). 48. Male gonocoxite, lateral view. 49. Male aedeagus, dorsal view. 50. Male



aedeagus, ventral view. 51. Male aedeagus, lateral view. 52. Female head, frontal view. 53. Female terminalia, dorsal view. 54. Female terminalia, ventral view. 55. Female furca, dorsal view. Abbreviations: Cercus (C); Distiphallus (Dp); Dorsal apodeme (DA); Ejaculatory apodeme (EA); Epandrium (Epa); Furca (F); Gonocoxite (Gx); Gonostylus (Gs); Hypoproct (Hypcrt); Parameral apodeme (PA); Sternite 8 (S₈); Sternite 10 (S₁₀); Tergite 8 (T₈); Tergite 9+10 (T₉₊₁₀); Ventral apodeme (VA). Scale = 0.1 mm, unless otherwise indicated.

Head: Length 0.8 mm. Ocellar tubercle dark reddish brown, silver pruinose; setae dark reddish brown. Eyes dull reddish brown; medial margin rounded. Frons dark reddish brown, glossy, with lateral silver pile and black dorsal pile, dorsal pile becoming silver dorsally. Antenna dark reddish brown, pruinose; setae dark reddish brown; macrosetae dark brown; length of antenna 1.4 times head length; length of scape 0.75 mm, 9.3 times width, 4.4 times length of pedicel; length of pedicel 0.11 mm, 1.1 times width; length of flagellum 0.34 mm, 3.4 times width, 0.4 times length of scape; length of basal stylomere 0.05 mm. Parafacial dark reddish brown, glossy with silver pile along lateral margins. Maxillary palpus pale brown; length 0.28 mm, 2.8 times width; setae pale yellow.

Thorax: Macrosetae: np 3. Dark reddish brown, pruinose. Postpronotal setae white, filiform and scale-like. Prosternal setae white. Pleura dark reddish brown, pruinose, anepisternum and ventral half of katepisternum glossy; setae white, filiform, scattered on propleuron and dorsal half of katepisternum, pale yellow, filiform, over entire anepisternum, scale-like over propleuron, anepisternum, and dorsal half of katepisternum. Scutellum dark reddish brown; setae white, filiform, and scale-like. Laterotergite dark reddish brown, pruinose; setae dark white to pale yellow, filiform. Wing. Length 3.2 mm, 2.7 times width; pale yellow, opaque; pterostigma indistinct. Halter dark yellow, stalk darker. Legs. Coxae dark reddish brown, pruinose. Femora dark yellowish brown. Fore tibiae dark reddish brown, middle and hind tibia dark yellowish brown. Tarsi dark brown. Coxal and femoral setae white, filiform and scale-like; tibial setae dark reddish brown.

Abdomen: Dark reddish brown; setae white, filiform, more abundant laterally than dorsally, and white, appressed, lanceolate, more abundant along posterior margins. Terminalia (Figs. 2–8). Dark yellow. Sternite 8 moderately reduced, posterior margin slightly concave. Gonostylus lacks lateral



Fig. 56. The distribution of *Chromolepida bella* in the western United States.

projection. Dorsal apodeme of aedeagus broad anteriorly, wider than ventral apodeme, anterior slightly emarginate; distiphallus elongate, sinuate.

Variation in males: Body measurements for males are provided in Table 3. Considerable variation in coloration was noted between the holotype and most males of this species. Specimens in the San Francisco area and from Inglenook Fen appeared to be smaller and more slender in size than specimens inland from the coastal dune habitats where the holotype was collected. Head. Antenna reddish brown, pruinose, paler on basal half of scape; setae reddish brown. Maxillary palpus dark reddish brown. In one specimen (9045), a few frontal setae were noted at base of antenna. Wing. Membrane

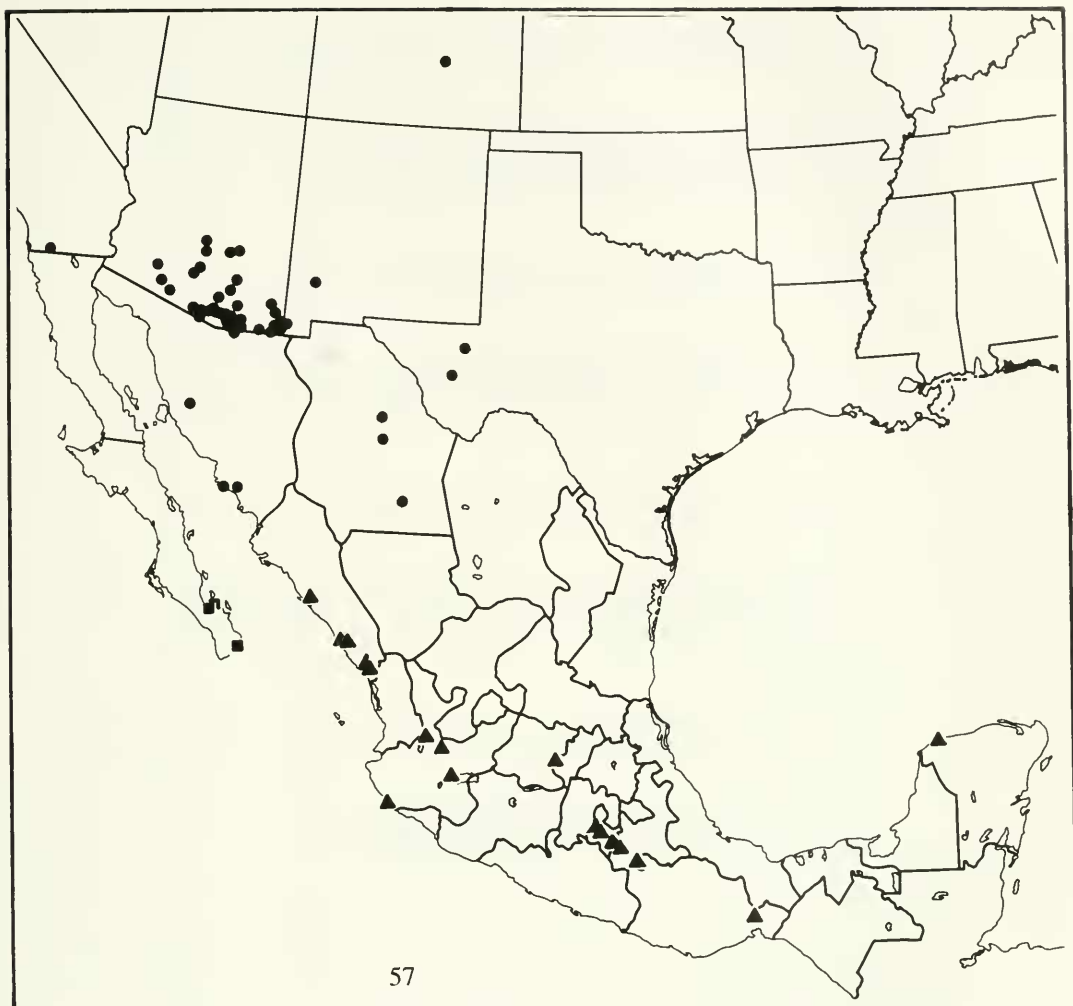


Fig. 57. The distribution of *Chromolepida clavitibia* (Squares), *C. mexicana* (Circles) and *C. nigra* (Triangles) in the southwestern United States and México.

pale yellow. Halter dark yellow. Legs. Femora dark reddish brown, apical half dark yellow. In one specimen (9037), the legs were entirely dark reddish brown, subshiny. Abdomen. Tergite 1 dark reddish brown, tergites 2–8 dark yellow; setae white, lanceolate, dense dorsally on tergites 1–3. Terminalia. The contour of the lateral margin of the epandrium varies from specimen to specimen.

Description of female.—Similar to male with following exceptions. Body measurements for females given in Table 3.

Head: Frons dark reddish brown, glossy dorsad of antennal bases, with dark gray pile lateral to antennal bases with silver, medial, pruinose band and a circular area of black pile dorsolateral to antennal bases; setae absent.

Thorax: Macrosetae: np 3. Setae white, elongate, with scattered reddish brown setae. Legs. Femora dark yellowish brown, becoming dark reddish brown basally on middle and hind femora.

Abdomen: Dark yellowish brown, subshiny; setae dark reddish brown, filiform

Table 3. Morphometric variation in the species of *Chromolepida* (N = 10 except N = 4 for *C. clavatibia* males and females). The range (mm) and ratio for each measurement are followed by the mean.

	<i>bella</i>	<i>bella</i>	<i>clavatibia</i>	<i>clavatibia</i>	<i>mexicana</i>	<i>mexicana</i>	<i>nigra</i>	<i>nigra</i>	<i>pruinosa</i>	<i>pruinosa</i>
Male										
Body length (excluding antenna)	4.0-5.8	5.2	5.2-5.3	5.30	4.5-6.2	5.6	4.7-6.0	5.1	5.7-7.7	6.6
Wing length	3.0-4.0	3.5	3.8-4.0	3.9	3.3-4.3	3.9	3.5-4.3	3.8	4.2-5.0	4.6
Wing length/width	1.9-3.1	2.7	2.5-3.3	3.0	2.7-3.1	2.9	2.8-3.1	3.0	2.7-3.3	3.0
Head length	0.60-1.00	0.75	0.8-0.88	0.84	0.75-1.02	1.02	0.78-0.98	0.87	0.82-0.96	0.89
Antenna/head length	1.1-1.8	1.4	1.30	1.3	0.8-1.2	1.0	1.0-1.4	1.3	1.1-1.3	1.1
Scape length	0.48-0.96	0.75	0.56-0.58	0.57	0.33-0.52	0.46	0.47-0.74	0.55	0.48-0.66	0.56
Scape length/width	4.8-13.7	9.3	5.6-5.8	5.7	3.7-5.8	4.7	4.7-9.3	6.1	3.9-5.5	4.7
Scape length/pedicel length	5.1-11.1	7.5	4.7-5.6	5.0	3.3-4.8	4.2	3.9-5.3	4.5	4.2-6.0	5.5
Pedicel length	0.07-0.13	0.10	0.10-0.12	0.12	0.07-0.15	0.11	0.12-0.16	0.14	0.10-0.12	0.1
Pedicel length/width	0.8-1.3	1.0	1.0-1.2	1.2	0.8-1.5	1.1	1.1-1.6	1.4	0.7-1.2	0.8
Flagellum length	0.27-0.37	0.32	0.38-0.46	0.41	0.27-0.42	0.36	0.35-0.40	0.38	0.34-0.36	0.35
Flagellum length/width	2.7-3.5	3.1	3.5-4.6	4.0	2.7-4.0	3.5	3.2-3.5	3.3	2.4-3.4	2.9
Flagellum length/scape length	0.3-0.7	0.4	0.7-0.8	0.7	0.6-0.9	0.8	0.5-0.7	0.6	0.5-0.7	0.6
Stylomere length	0.02-0.08	0.05	0.04	0.04	0.03-0.06	0.05	0.04-0.06	0.05	0.06	0.06
Maxillary palpus length	0.28-0.82	0.50	0.46-0.52	0.49	0.30-0.52	0.44	0.37-0.56	0.47	0.42-0.60	0.49
Maxillary palpus length/width	2.8-6.3	5.1	5.8-6.5	6.1	3.2-7.4	5.4	4.8-8.5	6.5	4.2-8.0	6.1
Length of fore femur					1.0-1.4	1.2	1.1-1.2	1.1		
Length of fore femur/length of scape					1.8-2.8	2.4	1.4-2.4	1.7		
Length of fore tibia					1.0-1.5	1.3	1.1-1.3	1.2		
Length of fore tibia/length of scape					2.0-3.1	2.5	1.5-2.4	1.8		
Length of hind femur					1.4-2.3	1.8	0.8-1.6	1.6		
Length of hind femur/length of scape					2.9-4.4	3.5	2.0-3.3	2.4		

Table 3. Continued.

	<i>bella</i>	<i>bella</i>	<i>clavathia</i>	<i>clavathia</i>	<i>mexicana</i>	<i>mexicana</i>	<i>nigra</i>	<i>nigra</i>	<i>pruinosa</i>	<i>pruinosa</i>
Female										
Body length (excluding antenna)	5.5-8.2	6.8	7.0-8.2	7.6	6.5-8.0	7.1	5.3-7.3	6.5	6.3-8.4	7.5
Wing length	3.5-4.8	4.2	4.5-5.3	4.9	3.1-5.0	4.6	3.8-4.7	4.4	4.2-5.2	4.8
Wing length/width	2.5-3.3	2.9	2.8-3.5	3.1	2.9-3.6	3.1	2.8-3.5	3.0	2.9-3.4	3.2
Head length	0.62-0.94	0.85	0.88-1.02	0.94	0.92-1.08	0.98	0.78-0.92	0.88	0.9-1.1	1.0
Antenna/head length	1.2-1.7	1.4	1.3-1.5	1.4	0.9-1.3	1.1	1.4-1.7	1.5	1.1-1.5	1.2
Scape length	0.56-0.78	0.66	0.70-0.80	0.74	0.49-0.68	0.57	0.60-0.90	0.77	0.65-0.84	0.74
Scape length/width	4.4-6.7	5.6	5.3-6.7	5.9	4.3-7.0	5.5	5.0-7.5	6.5	3.4-6.1	4.4
Scape length/pedicel length	4.3-5.7	5.1	4.4-5.3	4.9	3.4-6.1	4.4	3.3-5.6	4.9	6.2-7.5	6.6
Pedicel length	0.12-0.18	0.13	0.14-0.18	0.15	0.08-0.16	0.13	0.14-0.18	0.16	0.09-0.15	0.13
Pedicel length/width	0.9-1.4	1.1	1.0-1.5	1.2	0.8-1.5	1.1	1.1-1.5	1.4	0.9-1.6	1.2
Flagellum length	0.36-0.44	0.41	0.40-0.44	0.42	0.37-0.44	0.4	0.38-0.45	0.41	0.33-0.40	0.36
Flagellum length/width	2.8-3.5	3.2	2.5-3.7	3.1	2.8-3.9	3.2	2.7-3.2	3.0	2.6-3.3	2.7
Flagellum length/scape length	0.5-0.7	0.6	2.9-3.7	3.3	0.6-0.9	0.7	0.5-0.6	0.5	0.5-0.6	0.5
Stylomere length	0.06-0.10	0.08	0.04	0.04	0.03-0.05	0.04	0.04	0.04	0.03-0.04	0.04
Maxillary palpus length	0.34-0.54	0.43	0.52-0.58	0.54	0.38-0.52	0.45	0.48-0.54	0.51	0.38-0.59	0.46
Maxillary palpus length/width	3.4-6.0	5.0	5.2-7.3	5.7	3.7-6.0	4.7	6.0-6.8	6.4	4.0-7.6	5.3



Fig. 58. The distribution of *Chromolepida pruinosa* in Nicaragua, Costa Rica, Colombia, Venezuela, and Guyana.

and scale-like. Terminalia (Figs. 9–11). Sternite 8 (Fig. 10) with posterior margin bilobed medially. Furca (Fig. 11) subrectangular; length 0.5 mm; anterior margins broadly rounded; posterior margin biconcave; lateral margins sinuate.

Variation in females.—In specimen (9047) scutellum with 5 macrosetae. In specimen (9036) femora dark reddish brown, apical half of fore and middle femora dark yellow. Specimens in the San Francisco area and from Inglenook Fen appeared to be smaller and more slender in size than specimens collected inland and away from coastal dunes.

Seasonal activity and distribution

In the specimens examined, adults were collected between 16 April and 27 September. The following plant taxa have been recorded as sources from which specimens were collected: *Achillea Millefolium* L., *Apocynum* sp., *Atriplex* sp., *Daucus pusillus* Michx., *Descurainia Sophia* (L.) Webb, *Lactuca pulchella* (Pursh) DC., *Lupinus* sp., *Phacelia ciliata* Benth. Specimens have also been collected from a reseeded range, fen areas, an oak-chapparral zone, and in flight and light traps. *Chromolepida bella* have

been collected from southern California to southeastern Washington eastward into Utah and Nevada (Fig. 56).

Specimens examined

Type material.—The holotype male of *Chromolepida bella* Cole (U.S. Museum of Natural History, Type No. 25929) (M. E. Irwin Therevidae Specimen Number 9177) was collected near San Francisco, California on 6 June 1920 by F. R. Cole.

Other material.—UNITED STATES. CALIFORNIA. Fox Valley, 8-VII-1935, J. Schuh, 1 ♀ (FSCA). Alameda County: Midway Road, 16-VIII-1957, W. W. Middlekauff, 1 ♀ (UCB); Arroyo Mocho, Mines Road, 28 km NE Livermore, 18-VI-1967, P. H. Arnaud, 1 ♂ (CAS); Berkeley, 27-V-1933, G. E. Bohart, 1 ♀ (UCB); 22-V-1907, M. A. Cazier, 2 ♂ (AMNH); Patterson Reserve, Del Valle Lake, 20-VIII-1973, J. Powell, 3 ♀ (UCB). Calaveras County: Big Trees, 7-VI-1931, E. C. Van Dyke, 1 ♀ (CAS). Contra Costa County: 6-VI-1912, 1 ♀ (UCB); 11-VIII-1982, D. G. Denning, 1 ♀ (CAS); Orinda Village, San Pueblo Ridge below Eureka Peak, 10-VIII-1969, E. I. Schlinger, 1 ♀ (MEI), oak-chapparral zone; Lafayette, 25-VI-1984, E. I. Schlinger, 1 ♀ (UCB); Mount

- Diablo, 16-VII-1933, R. H. Beamer, 1 ♂ (SEM); Danville, 10-VIII-1949, F. X. Williams, 1 ♂ (UCB); 11-VIII-1951, 2 ♀ (UCB); Clayton, 20-VI-1992, E. I. Schlinger 1 ♀ (MEI); 15-VII-1992, 2 ♀ (MEI). Fresno County: Silver Creek, 16 km W Mendota, 10-VI-1962, P. F. Torchio, 1 ♀ (OSM); Selma, 4-VI-1929, R. L. Usinger, 1 ♂ 1 ♀ (UCB). Kern County: Lost Hills, 13-VI-1957, P. Opler, 1 ♀ (UCB); 16 km W Kramer Junction, 16-IV-1974, J. Wilcox, 1 ♀ (CAS). Lake County: Bogg's Lake, 10 km SSE Kelseyville, 838 m, 20-VIII-1966, P. H. Arnaud, 2 ♂ (CAS). Lassen County: Susan River Camp, 9-VII-1949, A. T. McClay, 1 ♂ (UCD); 10-VII-1949, 1 ♂ (UCD); Bridge Creek Camp, 12-VII-1954, R. C. Bechtel, 1 ♂ 1 ♀ (MEI); 40 km S Adin, 20-VI-1963, J. Wilcox, 1 ♂ (UCB). Los Angeles County: 27 km E Gorman, 16-IV-1962, J. A. Litsinger, 1 ♀ (UWisc); Chuchapate Ranger Station, 22-V-1959, E. I. Schlinger, 2 ♀ (UCD); Palmdale, 1-V-1968, J. Powell, 2 ♂ (MEI, UCB). Marin County: 3 km N Point Reyes light, 4-VI-1956, A. M. Barnes, 1 ♂ (UCB); Lagunitas, 11-V-1924, E. C. Van Dyke, 1 ♂ (UCB); 25-VI-1924, E. H. Nast, 1 ♂ 1 ♀ (UCB). Mendocino County: Alpine Lake, 4-VIII-1955, C. D. MacNeil, 1 ♂ (UCB); Inglenook Fen, fen area, 9–15 m, 13-VI-1973, E. I. Schlinger, 2 ♂ 2 ♀ (MEI, UCB); Inglenook Fen, dunes, 6–24 m, 21-VII-1972, P. A. Rauch, 2 ♀ (MEI); Inglenook Fen Reserve, Ten Miles dunes, 24-VI-1982, M. Buegler, 1 ♂ (MEI), on sand dunes. Modoc County: 24 km E Cedarville, 3-VII-1935, J. Schuh, 2 ♀ (CSU, FSCA); Newell, 31-VII-1963, J. Schuh, 1 ♀ (UCB), on *Lactuca pulchella*. Monterey County: near Pacific Grove, 8-VII-1935, J. Schuh, 1 ♀ (UCM); U. N. Lanham 1 ♀ (UCM); Arroyo Seco, 21-V-1955, D. Ribble, 1 ♂ (SEM); Arroyo Seco Camp, 11-V-1958, R. M. Bohart, 1 ♂ (UCD). Napa County: Oakville, 55 m, 6-IX-1970, P. H. Arnaud, 7 ♂ 2 ♀ (CAS, INHS). Nevada County: Sagehen Creek, near Hobart Mills, 25-VI-1954, J. A. Powell, 2 ♂ (UCB); 5-VII-1962, M. E. Irwin, 2 ♂ 2 ♀ (MEI). Placer County: Carnelian Bay, Lake Tahoe, 13-VI-1959, R. M. Bohart, 2 ♂ 3 ♀ (INHS, UCD); 24-VI-1973, 2 ♂ (INHS, UCD); 8-VII-1955, 2 ♂ 3 ♀ (UCD). Sacramento County: Galt, 27-VII-1952, E. I. Schlinger, 1 ♀ (UCD); Sacramento, 1-VIII-1955, E. A. Kurtz, 1 ♀ (UCD). San Francisco County: San Francisco, 21-V-1922, C. L. Fox, 1 ♂ (UCB); sand dunes; 23-V-1927, 2 ♂ (CAS); 13-V-1960, D. C. Rentz, 3 ♂ 1 ♀ (CAS); 14-V-1960, 2 ♂ (CAS); 6-VI-1920, E. P. Van Duzee, 4 ♂ 1 ♀ (MCZ, UCB, USNM); San Francisco, Laguna Puerca, 11-V-1960, J. Powell, 2 ♀ (UCB); 16-V-1960, 9 ♂ 3 ♀ (INHS, UCB, UCD); 24-V-1961, 1 ♂ (UCB); 13-VI-1961, W. E. Ferguson, 1 ♂ (UCB); 14-VI-1960, G. I. Stage, 2 ♀ (UCB); San Francisco, Golden Gate Park, 6-VI-1920, F. R. Cole, 9 ♂ 2 ♀ (ANSP, CNC, MCZ, UCB, UMinn, USNM); 9-VI-1922, 2 ♂ 2 ♀ (MEI, UCB); 15-VI-1921, 4 ♂ (MEI, UCB); Golden Gate Dunes, 25-VI-1931, C. H. & D. Marrin, 2 ♂ (OSU); Lobos Creek, 10-V-1979, J. Powell, 5 ♂ 3 ♀ (UCB); Stanford University, 21-VI-1910, 1 ♂ (USNM). Santa Clara County: 11 km S San Antonio Ranger Station, 27-VI-1953, G. A. Marsh, 1 ♀ (UCB); 11 km S San Antonio Ranger Station, 27-VI-1953, G. A. Marsh, 1 ♀ (UCB); San Jose, 6-VIII-1956, D. Ribble, 1 ♀ (SEM); Smith Creek Ranger Station, 640 m, 20-21-VII-1968, P. H. Arnaud, 1 ♀ (CAS). Santa Cruz County: Felton, Santa Cruz Mountains, 91–152 m, 20-25-V-1907, Bradley, 5 ♂ 5 ♀ (CU). Shasta County: 21 km NW McArthur, 3-VI-1964, J. Schuh, 1 ♂ (UCB), on *Apocynum* sp.; Jones Valley, Shasta Lake, 25-VIII-1959, W. G. Iltis, 1 ♂ 1 ♀ (UCD). Sierra County: Sattley, 13-VII-1962, R. M. Bohart, 2 ♀ (INHS, UCD); 26-VI-1964, 6 ♂ 1 ♀ (INHS, UCD); 26-VI-1964, M. E. Irwin, 10 ♂ 4 ♀ (INHS, MEI, UCD), swept from pasture of blooming *Daucus pusillus*; 28-VI-1964, M. E. Irwin, 1 ♂ (UCD); 26-VI-1964, C. R. Kovacic, 6 ♂ (UCD); Sierra Valley, 3-VII-1980, L. S. Kimsey, 1 ♂ (UA, UCD). Siskiyou County:

- 10 km S Macdoel, 2-VII-1956, J. Schuh, 1 ♂ 1 ♀ (UCB). Solano County: Solano Lake, 14-V-1971, E. E. Grissell, 1 ♀ (UCD). Sonoma County: Windsor, 3-VIII-1956, A. M. Barnes, 1 ♂ (INHS); Cloverdale, 24-VIII-1953, E. I. Schlenger, 1 ♀ (UCB). Stanislaus County: Del Puerto Canyon, Frank Rains Park, 335 m, 27-IX-1969, P. H. Arnaud, 1 ♀ (CAS). Trinity County: Hayfork, 22-V-1973, J. Chemsak, 1 ♀ (INHS, UCB); 23-V-1972, 2 ♂ 1 ♀ (MEI, UCB), flight trap; Mountain Meadow Ranch, head of Coffee Creek, 1555 m, 8-10-VII-1969, C. Slobodchikoff, 1 ♂ (UCB); W. G. Goodman, 1 ♂ (UCD); Hayfork Ranger Station, 22-V-1973, J. Chemsak, 3 ♂ 4 ♀ (MEI, UCB), light trap. Ventura County: Wagon Road Number 2 Campground, 29 km WSW Gorman, 1585 m, 4-VII-1968, P. H. Arnaud, 1 ♂ (CAS); Lockwood Valley near Stauffer Post Office, 5-V-1959, P. D. Hurd, 1 ♂ (UCB), on *Phacelia ciliata*; 7-V-1959, 1 ♂ (UCB), on *Descurainia Sophia*; 3-V-1959, C. W. O'Brien, 2 ♂ 2 ♀ (UCB), on *Phacelia ciliata*; J. Powell, 1 ♂ (UCB). Yolo County: 13 km NW Winters, 10-VIII-1959, J. Fowler, 1 ♀ (UCD); 6 km SW Dunnigan, 8-IX-1959, 1 ♀ (UCD), light trap; Rumsey, 6-VIII-1955, E. A. Kurtz, 1 ♀ (UCD); Davis, 30-VI-1936, R. M. Bohart, 2 ♀ (UCD); 11-VII-1936, 2 ♀ (UCD); 3-VIII-1955, 2 ♂ (UCD); 14-VIII-1969, 1 ♀ (UA); 11-VIII-1982, D. G. Denning, 1 ♂ (CAS); 25-V-1962, M. E. Irwin, 1 ♀ (MEI); 27-V-1962, 1 ♀ (MEI); 4-VIII-1962, 1 ♂ 2 ♀ (MEI); 11-VIII-1962, 2 ♀ (MEI, UCD); 4-VI-1965, C. R. Kovacic, 1 ♂, 4-VII-1965, 1 ♂ (UCD); 18-V-1950, A. T. McClay, 2 ♀ (UCD); 9-VI-1950, 2 ♀ (UCD); 22-VII-1956, 4 ♀ (UCD); 20-VIII-1955, 2 ♂ (UCD); 21-VIII-1955, 2 ♀ (UCD); 28-VIII-1955, 2 ♂ (UCD); 2-IX-1956, 2 ♂ (INHS, UCD); 8-VIII-1953, W. D. McClellan, 2 ♂ (UCD); 18-VIII-1964, F. D. Parker, 2 ♀ (UCD); 26-IX-1965, 2 ♀ (INHS, UCD); 16-VII-1952, E. I. Schlenger, 2 ♂ (UCD); 17-VII-1959, 2 ♂ (UCD); 15-VII-1962, R. O. Schuster, 8 ♂ 4 ♀ (UCD); 23-IV-1959, F. E. Strong, 2 ♂ (UCD); 21-VI-1959, 1 ♂ (UCD); 29-VI-1959, 1 ♂ (UCD); 8-VIII-1959, 4 ♂ (UCD), light trap; 10-VIII-1959, 2 ♂ (UCD); 23-VIII-1959, 2 ♂ 2 ♀ (UCD), light trap. IDAHO. Eastern Idaho, 11-VII-31, D. E. F., 1 ♂ (USNM). Boise County: 14 km E Garden Valley, 3-VII-1979, M. W. Hanks, 2 ♂ (UIda). Camas County: 16 km NW Hill City, 15-VII-1967, A. R. Gittins, 1 ♂ 1 ♀ (UIda), *Lupinus* sp. Fremont County: 11 km NW Anthony, 16-VII-1965, R. L. Westcott, 2 ♀ (UIda). Gooding County: Wendell, 9-VI-33, Norta-Salsola, 1 ♂ (USNM); Bliss, 1000 m, 1-VI-1926, R. W. Haegele, 2 ♀ (UIda). Jefferson County: 7 km NW Terreton, 25-VII-1957, W. F. Barr, 2 ♀ (UIda). Latah County: Idlers Rest Creek near Moscow, 12-VII-1964, R. L. Westcott, 2 ♀ (UIda). Minidoka County: Adelaide, 14-VI-1929, 3 ♂ (UIda). Oneida County: Stone Reservoir, 31-V-1969, G. F. Knowlton, 1 ♂ (USU); Pocatello Valley, 11-VI-1973, G. F. Knowlton, 1 ♂ (USU); 3.2 km S Roy Summit, 17-VII-1972, G. F. Knowlton, 1 ♀ (USU). Owyhee County: 21 km S Grasmere, 7-VII-1969, A. R. Gittins, 2 ♀ (UIda); 27 km S Grasmere, 7-VII-1968, A. R. Gittins, 2 ♀ (UIda), *Achillea Millefolium*. Twin Falls County: Castleford, 28-VI-28, 1 ♀ (USNM); Castleford, Sophia #3, 15-VI-34, 1 ♀ (USNM); Roseworth, 16-VII-1963, O. O. Fillmore and G. B. Hewitt, 2 ♂ (UIda); 11 km S Kimberly, 8-VI-1967, M. A. Brusven, 2 ♀ (UIda); Hollister, 13-VI-1931, D. E. Fox, 2 ♂ (MEI, UCD); 26-VI-1931, D. E. Fox, 1 ♂ (UCD). Valley County: Camp Creek, South Fork Salmon River, 14-VI-1966, W. F. Barr, 2 ♀ (UIda). Washington County: Midvale, 782 m, 20-VI-1926, R. W. Haegele, 2 ♂ (UIda). NEVADA. Elko County: Carlin, 25-VI-1935, R. H. Beamer, 5 ♂ (INHS, SEM); 8 km NE Lamoille, 19-VI-1958, R. C. Bechtel, 2 ♂ (MEI, UCD); Harrison Summit, Ruby Mountain, 2208 m, 28-VI-1960, R. E. Blackwelder, J. C. Downey, 2 ♂ 2 ♀ (UCD); 11 km S Carlin, 27-VI-1955, J. C. Downey, 2 ♂ 1 ♀ (UCD); Wells, 12-VII-1911, J. M.

Aldrich, 1 ♀ (USNM). Humboldt County: Orovada, 14-VII-1962, F. D. Parker, 2 ♂ 2 ♀ (UCD); Winnemucca, 23-V-1960, T. R. Haig, 2 ♂ (UCB). Lander County: Austin Summit, 2255 m, 27-VI-1962, L. R. O'Brien, 2 ♀ (UCB) Ormsby County: Ormsby, 6-VII-, Baker, 1 ♂ (USNM); Carson City, 26-VII-1929, E. P. Van Duzee, 1 ♂ 2 ♀ (CAS, UCB). Washoe County: Reno, 19-V-1963, R. C. Bechtel, 2 ♀ (UCD); Patrick, 16-VI-1964, J. E. Slanky, 2 ♀ (MEI). OREGON. Critterion, 2-VII-1935, R. H. Beamer, 2 ♂ (SEM). Baker County: Sparta, 3-VII-1922, E. C. Van Dyke, 1 ♀ (UCB). Gilliam County: 3 km W Arlington, 29-VII-1964, J. W. MacSwain, 7 ♀ (MEI, UCB). Grant County: Seneca, 11-VII-1935, J. Schuh, 1 ♂ (CSU); Keerin's Ranch, Izee, 25-VI-1935, J. Schuh, 1 ♀ (FSCA). Harney County: Antelope Mountain, 11-VII-1931, D. K. Frewing, 1 ♀ (OSM); Roaring Spring Ranch, Steens Mountains, 1370 m, 7-VII-1927, H. A. Scullen, 1 ♂ (OSM). Josephine County: 6 km E Grants Pass, 17-VII-1969, R. L. Westcott, 1 ♂ (OSDA). Klamath County: Klamath Falls, 13-V-1924, C. L. Fox, 1 ♂ (MEI); 21-VII-1973, J. Schuh, 1 ♀ (FSCA); Worden, 1-VII-1935, R. H. Beamer, 2 ♀ (INHS, SEM); Algoma, Klamath Falls, 18-VII-1955, J. Schuh, 2 ♂ (UCB); 21-VIII-1973, 1 ♀ (FSCA). Malheur County: 3 km S Vale, 28-V-1969, K. Gordon, 1 ♀ (OSDA), reseeded range. Wasco County: Shaniko, 17-VII-1935, J. Schuh, 1 ♀ (FSCA); 13 km N Warm Springs, 2-VI-1968, K. Goeden, 1 ♂ (OSDA). UTAH. Lampo, 22-V-1932, G. V. Knowlton, 1 ♂ (SEM); 31-V-1939, 1 ♀; Locomotive Spring, 9-VI-1930, 1 ♂ (AMNH), *Atriplex* sp. Box Elder County: Snowville, 24-VI-1931, G. F. Knowlton, 1 ♀ (USU); 5-VI-1934, W. L. Thomas, 1 ♀ (USU); 8 km W Snowville, 6-VI-1969, G. F. Knowlton, 1 ♀ (USU); Bothwell, 22-VI-1938, D. E. & H. T. Hardy, 1 ♀ (USU). Cache County: Hyrum, 22-VI-1938, D. E. Harax, W. P. Nye, 1 ♀ (INHS); Logan, South Farm, 9-VII-1948, B. A. Haws, 1 ♂ (USNM). WASHINGTON. Ben-

ton County: 3 km W West Richland, 7-VI-1973, N. E. Woodley, 1 ♀ (WSU). Klickitat County: 40 km N Goldendale, 26-VI-1969, R. L. Westcott, 1 ♀ (UIDA).

Chromolepida clavitibia

Webb and Irwin, NEW SPECIES

Derivation of name.—*clava* (Latin, female) = club; *tibia* (Latin) = shinbone.

Diagnosis.—Males of *Chromolepida clavitibia* differ from the males of all other species of *Chromolepida* in having dark brown halteres, dark reddish brown to black femora, and the fore tibia distinctly clavate. Females of *Chromolepida clavitibia*, like *C. nigra*, have dark brown to black halteres and femora. The species is separated from *C. nigra* in having the fore tibia distinctly clavate.

Description of holotype male (8812).—Body length 5.3 mm.

Head: Length 0.9 mm. Ocellar tubercle black, pruinose; setae black, filiform. Eyes dark reddish brown; medial margin rounded. Frons with medial callus dark reddish brown, glossy, dorsal and lateral pile silver; setae black, filiform. Antenna black, pruinose; setae black, filiform, short; macrosetae black; length of antenna 1.3 times head length; length of scape 0.56 mm, 5.6 times width, 4.7 times length of pedicel; length of pedicel 0.12 mm, 1.2 times width; length of flagellum 0.46 mm, 4.6 times width, 0.8 times length of scape; length of stylomere 0.04 mm. Parafacial dark reddish brown, glossy with silver pile along lateral margins. Maxillary palpus black; length 0.46 mm, 5.8 times width; setae white, filiform.

Thorax: Macrosetae: np 3. Black, pruinose; setae white and dark brown filiform and silver-green scale-like. Postpronotal setae white filiform and silver-green scale-like. Prosternal setae white filiform. Pleura dark reddish brown to black, pruinose, with posterior three-fourths of anepisternum glossy; setae pale yellow filiform on propleuron, anepisternum and dorsal third of katepi-

meron, silver-green scale-like on anepisternum and dorsal third of katepisternum. Scutellum black, pruinose; setae silver lanceolate in band across posterior margin. Laterotergite black, subshiny; setae white to pale yellow filiform. Wing. Length 4.0 mm, 3.3 times width; opaque, pale yellow, pale smoky black band across wing apex and apex of discal and posterior basal cells; pterostigma pale brown. Halter brown. Legs. Coxae dark reddish brown to black, pruinose. Femora dark reddish brown to black, subshiny. Tibiae dark reddish brown; fore tibia distinctly clavate. Tarsi dark reddish brown. Coxal setae white filiform and silver-green scale-like; femoral setae white filiform and silver-green scale-like; tibial setae dark reddish brown filiform.

Abdomen: Tergites 1–2 dark brown, pruinose, tergites 3–8 yellowish orange, subshiny; dorsal setae white lanceolate, densely appressed over tergites 1–2 and medially on tergite 3, lateral setae pale yellow filiform and silver-green scale-like. Terminalia (Figs. 12–18). Yellowish orange, subshiny. Sternite 8 moderately reduced, posterior margin moderately concave. Gonostylus with short basilateral projection. Dorsal apodemes of aedeagus broad, anterior margin deeply concave; ventral apodeme broad, anterior margin pointed; distiphallus elongate, sinuate.

Variation in males: Body measurements for males are provided in Table 3.

Description of female.—Similar to male with following exceptions. Body measurements for females given in Table 3.

Head: Frons black, pruinose with medial callus dark reddish brown, subshiny, with dorsolateral circle of black pile and narrow band of white pile lateral to antennal bases; setae black.

Thorax: Macrosetae: np 3. Wing. Pale smoky brown, margin of veins darker; pterostigma dark brown.

Abdomen: Dark reddish brown to black, subshiny; dorsal setae white, lanceolate, across posterior margin of tergites 1–3, lat-

eral setae pale yellow filiform and silver-green scale-like on tergites 1–2. Terminalia (Figs. 19–21). Sternite 8 (Fig. 20) with posterior margin bilobed. Furca (Fig. 21) subrectangular; length 0.34 mm; posterior and anterior margins truncate; lateral margins parallel.

Seasonal activity and distribution

In the specimens examined, adults were collected during April, October, and December. *Chromolepida clavitibia* has been collected only from the southern tip of Baja California Sur, México (Fig. 57).

Specimens examined

Type material.—The holotype male of *Chromolepida clavitibia* (deposited in the California Academy of Sciences, Type No. 17029, on permanent loan from the University of California, Riverside) (M. E. Irwin Therevidae Specimen Number 8812) was collected at Los Frailes, Baja California Sur, MEXICO, by E. M. Fisher, on 25-26-IV-1975.

Other material.—ALLOTYPE: In copulo with holotype, same data as holotype (CAS). PARATYPES: MEXICO. Baja California Sur. Los Frailes, 25-26-IV-1975, E. M. Fisher, 2 ♂ 2 ♀ (INHS, UCR); 16 km NW La Paz, 6-X-1941, Ross, Bohart, 1 ♂ (CAS); La Paz, 19-XII-1973, W. Middlekauff, 1 ♀ (UCB).

Chromolepida mexicana Cole

Chromolepida mexicana Cole (1923: 460); Cole (1965: 350); Irwin and Lyneborg (1981a: 260).

Derivation of name.—*mexicana* = of or from México.

Diagnosis.—Males of *Chromolepida mexicana*, like *C. nigra*, have the distiphallus elongate and bent at a right angle to the plane of the aedeagus. The males differ from *C. nigra* in having the apical half of the gonocoxite broad in lateral view. Fe-

males of *Chromolepida mexicana*, like *C. clavitibia* and *C. nigra*, have dark brown to black halteres. The females are separated from *C. clavitibia* and *C. nigra* in having the femora dark yellow.

Redescription of holotype female (9025).—Body length 7.0 mm.

Head: Length 1.0 mm. Ocellar tubercle dark reddish brown, pruinose; setae black. Eyes dull reddish brown; medial margin rounded. Frons dark reddish brown, with glossy callus dorsad of antennal bases, pruinose over remainder of frons, with silver, lateral pile and circular area of black pile dorsolateral to callus; setae black, scattered. Antenna reddish brown, pruinose; setae dark reddish brown; length of antenna 1.2 times head length; length of scape 0.66 mm, 6.6 times width, 4.4 times length of pedicel; length of pedicel 0.15 mm, 1.5 times width; length of flagellum 0.39 mm, 3.9 times width, 0.6 times length of scape; length of stylomere 0.04 mm. Parafacial dark reddish brown, glossy with silver pile along lateral margins. Maxillary palpus dark reddish brown; length 0.48 mm, 4.8 times width; setae white, filiform.

Thorax: Macrosetae: np 3. Dark brown; setae white, filiform, short, scattered scale-like. Postpronotal setae white and scale-like. Prosternal setae white. Pleura dark reddish brown, pruinose, anepimeron glossy; setae white, filiform, on propleuron, anepisternum and dorsal third of katepisternum and silver, scale-like over entire anepisternum and dorsal third of katepisternum. Scutellum dark reddish brown, pruinose; setae white, lanceolate, in broad band across posterior margin. Laterotergite dark reddish brown; setae dark white. **Wing.** Length 4.7 mm, 3.1 times width; opaque, pale smoky brown with apical band, apex of discal and posterior basal cells, and along posterior margin of wing pale brown; pterostigma brown. Halter dark brown. **Legs.** Coxae dark reddish brown, pruinose. Femora dark yellow, subshiny. Fore tibia dark reddish brown, middle and hind tibiae dark yellow,

subshiny. Tarsi dark reddish brown. Setae white, filiform and, scale-like setae on fore coxa and femora, dark reddish brown, filiform on tibiae.

Abdomen: Dark reddish brown, subshiny; dorsal setae scale-like, and silver, appressed, lanceolate across posterior margin tergites 1–4, lateral setae white, filiform on tergites 1–2. Terminalia (Figs. 29–31). Sternite 8 (Fig. 30), posterior margin with deep central notch; apical fourth of sternite flattened. Furca (Fig. 31) subrectangular; length 0.4 mm; posterior and anterior margins broadly rounded; lateral margins parallel.

Variation in females: Body measurements for females are provided in Table 3. Thorax. Macrosetae: np 2-3, 3, sa 1, pa 1, dc 0, sc 4.

Description of male.—Similar to female with following exceptions. Body measurements for males given in Table 3.

Head: Ocellar tubercle dark reddish brown. Frons dark reddish brown, glossy, with silver pile dorsad and laterad. Maxillary palpus dark brown, pruinose.

Thorax: Macrosetae: np 3-4, 4. Vittae faintly separated by gray pruinose areas. Wings. Hyaline to pale yellow with apical band and apex of discal and posterior basal cells pale smoky brown; pterostigma slightly darker than membrane. Halter pale yellow, stalk darker yellow. Legs. Tibiae dark brown, pruinose. Length of fore femur to length of scape 1.8–2.9, 2.4 ± 0.2 ($N = 30$); length of fore tibia to length of scape 2.0–3.1, 2.5 ± 0.2 ($N = 30$); length of hind femur to length of scape 2.4–4.4, 3.5 ± 0.4 ($N = 30$).

Abdomen: Tergites 1–4 dark reddish brown, tergites 5–8 dark yellowish orange; setae white, filiform and dense, silver, lanceolate, appressed dorsally on tergites 1–4. Terminalia (Figs. 22–28). Dark yellowish orange. Sternite 8 moderately reduced, posterior margin slightly concave. Gonostylus with lateral hook-like projection. Dorsal apodeme of aedeagus broad anteriorly, anterior margin deeply emarginate, ventral apodeme attenuate, pointed anteriorly; dis-

tiphallus moderately long, bent at right angle to plane of aedeagus.

Seasonal activity and distribution

In the specimens examined, adults were taken from 31 January to 29 September. Specimens have been collected on *Acacia* sp., *Baccharis* sp., *B. glutinosa* Pers., *Bailleya* sp., *B. pleniradiata* Harr. and Gray, *Chenopodium album* L., *Euphorbia albomarginata* T. and G., *Happlopapus tenuisectus* (Greene) Blake, *Lepidium Thurberi* Woot., *Senecio* sp., *Solanum* sp., swept alfalfa, and from a dry wash. *Chromolepida mexicana* has been collected from northern México north to Arizona, southern California, central Colorado, southwestern New Mexico, and western Texas (Fig. 57).

Specimens examined

Type material.—The holotype of *Chromolepida mexicana* Cole (CAS) (M. E. Irwin Therevidae Specimen Number 9025) was collected at Guaymas, Sonora, México, on 10 April 1921 by E. P. Van Duzee.

Other material.—MEXICO. Chihuahua: 14.4 km W El Sueco, 1-VII-1972, R. Manga, T. Sluss, 1 ♂ (USNM); Chihuahua, 13-VII-1938, L. J. Lipovsky, 1 ♂ (SEM); 24 km S Camargo, 1310 m, 6-IX-1962, R. H. & E. M. Painter, 1 ♂ (KSU). Sonora: Nogales, 28-III-1950, 1 ♂ (USNM); 19 km N Ciudad Obregon, 24-IV-1961, R. H. & E. M. Painter, 1 ♀ (KSU); 132 km N Hermosillo, 7-II-1964, M. E. Irwin, 1 ♀ (MEI); Guaymas, 10-IV-1921, E. P. Van Duzee, 1 ♀ (CAS). UNITED STATES. ARIZONA. Southern Arizona, 30-VII-1959, F. M. Hull, 3 ♂ 1 ♀ (CNC). Cochise County: 32 km W Benson, 4-IX-1968, D. R. Miller, J. E. Lauck, 1 ♀ (UCD); Peloncillo Mountains, 16 km E Apache, 5-VIII-1972, R. F. Denno, K. Yeargan, J. R. Benedict, 1 ♂ (UCD); Carr Peak, Huachuca Mountains, 16-VIII-1966, R. L. Westcott, 2 ♀ (UIda); Douglas, 23-III-1933, W. W. Jones, 1 ♀ (UCB); 2-IV-1933, 1 ♀ (UCB); 2 km E Wilcox, 26-VII-1973, J. D. Pinto, 1 ♀ (UCR), *Chenopodium album*; 8 km E Lowell, 15-VIII-1958, P. M. Marsh,

1 ♀ (UCD); Chiricahua Mountains, 5-IX-1947, D. J. & J. N. Knull, 1 ♀ (UA); Southwest Research Station, 8 km W Portal 28-IX-1965, V. D. Roth, 1 ♀ (MEI); 16 km E Sierra Vista, 15-IX-1974, A. E. & M. M. Michelbacher, 1 ♀ (UCB), *Happlopapus tenuisectus*; 4.8 km E Douglas, 1-IX-1984, R. M. Bohart, 1 ♀ (UCD); 5 km E Douglas, 1216 m, 12-VIII-1962, H. A. Scullen, 1 ♂ 1 ♀ (OSU); San Bernardino Ranch, Douglas, 1143 m, -VIII-, F. H. Snow, 3 ♂ 1 ♀ (INHS, SEM); 48 km NE Douglas, 1417 m, 1-VIII-1946, H. A. Scullen, 1 ♂ (OSU); Skeleton Canyon, 10 km SE Apache, 1-IX-1958, E. G. Linsley, 1 ♂ (UCB); 7 km W Montezuma Pass, 9-IX-1965, C. W. O'Brien, 1 ♂ (UCB); Bruno Canyon, Chiricahua Mountains, 1525 m, 28-VIII-1965, G. R. Ballmer, 1 ♂ (UCR); 4 km NE Portal, 30-VIII-1959, E. G. Linsley, 1 ♂ (UCB), *Acacia* sp.; 3 km NE Portal, 2-4-VIII-1960, M. A. Cazier, 1 ♀ (AMNH); 17-IX-1961, 1 ♀ (AMNH); 6 km E Portal, Chiricahua Mountains, 13-VIII-1965, G. R. Ballmer, 1 ♂ (UCR); 11 km E Portal, 23-VIII-1963, M. A. Cazier, 1 ♂ (UCB); 13-VIII-1962, J. Wilcox, 1 ♀ (UCB); 18-IX-1962, 1 ♂ 2 ♀ (UCB); Wilcox, 2-VIII-1975, J. D. Pinto, 1 ♂ (UCR); 18-VIII-1958, R. M. Bohart, 1 ♀ (UCD); 14-IX-1935, F. H. Parker, 1 ♂ (USNM); Huachuca Mountains, 1 ♀ (USNM); 12-VIII-1950, D. J. & J. N. Knull, 2 ♂ 1 ♀ (OSM); San Bernadino Ranch, 1145 m, F. H. Snow, 1 ♀ (SEM); 15.4 km N Apache, 14-VIII-1959, E. G. Linsley, 1 ♀ (UCB); 6 km S Apache, 1-IX-1959, H. E. Evans, 1 ♀ (CU), *Baccharis glutinosa*; 8 km S Apache, 11-VIII-1958, P. D. Hurd, 1 ♀ (UCB); 8 km SW Apache, 1311 m, 12-VIII-1959, H. E. Evans, 1 ♀ (CU), *Baccharis glutinosa*; 19-VIII-1959, E. G. Linsley, 1 ♀ (UCB), *Baccharis* sp.; 14 km N Apache, 14-VIII-1959, E. G. Linsley, 2 ♀ (UCB); 21 km SW Apache, 24-VIII-1980, J. G. Rozen, 1 ♂ (AMNH); 2 km E Apache, 9-VIII-1973, J. G. Ehrenfeld, 2 ♀ (AMNH), *Euphorbia albomarginata*; 10-VIII-1973, J. G. Ehrenfeld, 1 ♀ (AMNH), *Euphorbia albomarginata*; Portal, 1525 m, 7-IX-1959, H. E. Evans, 1 ♂, 1 ♀ (CU). Gila County: base of Pinal

Mountains, -III-, D. K. Duncan, 1 ♂, 1 ♀ (FSCA); Mendoza Canyon, west slope Coyote Mountains, 1-VIII-1968, M. L. Lindsey, 1 ♂ (UA); Globe, 15-III-1936, F. H. Parker, 1 ♀ (UA); 25-III-1938, 2 ♂ (USNM); 2-IV-1935, 1 ♂ 1 ♀ (INHS, USNM); 5-IV-1935, 3 ♂ 3 ♀ (INHS, UA, USNM, WSU); 8-IV-1935, 1 ♀ (UA); 21-IV-1937, 1 ♀ (UA). Maricopa County: Cañon Lake, 2-IX-1935, F. H. Parker, 1 ♂ (USNM); Kyrene, 20-VI-1956, G. D. Butler, 1 ♀ (UA); Theba, 2-VIII-1954, G. D. Butler, 1 ♂ 1 ♀ (INHS, UA), swept alfalfa; Chandler, 26-V-1955, G. D. Butler, 3 ♀ (UA), swept alfalfa; 2-VIII-1955, O. L. Barnes, 2 ♂ 1 ♀ (UA), swept alfalfa. Pima County: Baboquivari Mountains, 28-IV-1935, F. H. Parker, 1 ♂ (USNM); Santa Rita Range Reserve, 1219 m, 12-VIII-1949, F. Werner, W. Nutting, 1 ♂ (USNM), mesquite-desert grassland; Santa Cruz Village, Cobabi Mountains, 945 m, 10-12-VIII-1916, 1 ♀ (CNC); Sasabe, 15-II-1997, O. Peck, 1 ♂ 5 ♀ (ASU, CNC, USU); Peña Blanco, Arivaca, 3-IX-1963, E. R. Burdien, 1 ♀ (USNM); Quijotoa, 28-VIII-1927, 1 ♂ (USNM); 48 km E Quijotoa, 28-29-VIII-1927, 1 ♀ (CU); Santa Catalina Mountains, 19-VIII-1968, R. M. Bohart, 1 ♀ (UCD); 26 km E Tucson, -III-1935, J. A. Griswold, 1 ♀ (MCZ); 76 km SW Tucson, 20-III-1961, R. H. & E. M. Painter, 1 ♀ (KSU), on flowers of *Baileya* sp.; Tucson, 5-III-1964, G. Danila, 1 ♂ 1 ♀ (USNM); 28-III-1967, D. M. Wood, 1 ♀ (CNC); 25-III-1956, G. D. Butler, 1 ♀, swept alfalfa; 28-VIII-, F. M. Carpenter, 1 ♀ (MCZ); 29-IX-1940, E. L. Peterson, 1 ♀ (UA); south of Tucson, 25-III-1970, O. R. Taylor, 1 ♀ (SEM); Madera Canyon, 18-VIII-1963, V. L. Vesterby, 2 ♀ (MEI, UCD); 2-IX-1973, L. Bezark, M. Ebertz, C. Katayama, 1 ♀ (UCB); Schaeffer Cañon, Baboquivari Mountains, 1573-1676 m, 18-IX-1924, R. & H., 1 ♂ (ANSP); 16 km NW Tucson, 732 m, R. H. & E. M. Painter, 1 ♂ (KSU); Baboquivari, 19-VII-1932, R. H. Beamer, 1 ♂ (SEM); 35 km E Ajo, 610 m, 31-III-1965, Bollinger, 2 ♂ (ASU, OSU); Rincon Mountains, 19-IX-1937, R. S. Beal, 1 ♂ (UA); Continental, 22-III-1956, F. W.

Werner, G. D. Butler, 1 ♂ 1 ♀ (INHS, UA), swept alfalfa; Sierrita Mountains, 915-1220 m, 10-VIII-1924, A. A. Nichol, 1 ♂ (UA); Brown's Canyon, Baboquivari Mountains, 18-VIII-1956, G. D. Butler, F. G. Werner, 2 ♂ 1 ♀ (UA); 21-VIII-1957, C. W. O'Brien, 1 ♂ (UA); Summerhaven, Santa Catalina Mountains, 2345 m, 20-VIII-1934, I. Moore, 1 ♀ (SDNHM); 5 km N Madera Canyon, 10-VIII-1979, G. Forbes, 1 ♀ (NMSU), in mesquite wash; 2 km W Robles Junction, 26-VII-1973, E. M. Fisher, 2 ♂ 2 ♀ (UCR); Box Canyon, 25-VIII-1975, L. Bezark, G. Nishida, C. Kitayama, B. Tilden, 1 ♀ (UCB); 10-VIII-1977, D. K. Faulkner, 1 ♂ (SDNHM). Pinal County: Aravaipa Canyon, 9-IX-1986, F. Parker, T. Griswold, 1 ♀ (USU); Coolidge, 19-VII-1956, C. Williams, 1 ♂ (INHS); Casa Grande, 26-V-1955, G. D. Butler, 2 ♂ (UA), swept alfalfa; 20-VI-1956, 1 ♂ (UA), swept alfalfa; Oracle, 1370 m, 11-VIII-1950, R. S. Beal, 1 ♂ (UCB); 25-VIII-1934, I. Moore, 1 ♂ 1 ♀ (SDNHM). Santa Cruz: Parkers Ranch, Santa Rita Mountains, 1981 m, 21-VII-1937, H. Ruckes, 1 ♀ (USNM); 19 km N Nogales, 1-VIII-1966, C. R. Kovacic, 1 ♀ (UCD); Santa Rita Range Reserve, 1219 m, 12-VIII-1949, F. G. Werner, W. Nutting, 1 ♂ (USNM), mesquite-desert grassland; 8 km E Nogales, 1-IX-1970, G. E. & R. M. Bohart, 1 ♂ 1 ♀ (UCD, USU); Santa Rita Mountains, 6-IV-1937, W. Benedict, 1 ♂ 2 ♀ (SEM); 1-VIII-1941, R. H. Beamer, 1 ♂ (SEM); Calabasas, 9.6 km W Nogales, 1-VIII-1961, F. G. Werner, W. Nutting, 1 ♂ (INHS); Madera Canyon, 12-VIII-1965, D. N. Harrington, 1 ♂ (MEI); 3 km SW Patagonia, 9-III-1963, J. C. Bequaert, 1 ♀ (UA); Patagonia Mountains, 7-VIII-1950, D. J. & J. N. Knull, 1 ♂ (OSM); Patagonia, 22-III-1956, G. D. Butler, F. G. Werner, 1 ♀ (WSU), *Senecio* sp.; 19-IV-1956, G. D. Butler, 1 ♀ (UA), swept alfalfa; 2-VIII-1924, E. P. Van Duzee, 1 ♀ (UCB); 5-VIII-1937, R. S. Beal, 1 ♂ (UA); 5 km W Sonoita, 15-VIII-1966, R. L. Westcott, 1 ♂, 1 ♀ (UIda). Yavapai County: Cottonwood, 29-II-1978, R. C. Miller, 1 ♂ (UCD). CALIFORNIA. San Diego County:

Campo, 18-VII-1940, R. H. Beamer, 1 ♂ 1 ♀ (INHS). COLORADO. El Paso County: Foster Ranch, T15S R65W Sec 23 N½, 1737 m, F. M. Brown, 1 ♀ (CSU). NEW MEXICO. Grant County: Silver City, 10-III-1934, R. T. Kellog, 3 ♂ 2 ♀ (MEI, OSM). Hildago County: Skeleton Canyon, Rodeo, 10-VIII-1955, R. R. Dreisbach, 1 ♂, Skeleton Canyon, 16-VIII-1968, J. B. Heppner, 1 ♂ 1 ♀ (MEI), sweeping *Lepidium Thurberi*; 4 km N Rodeo, 23-VIII-1958, E. G. Linsley, 1 ♀ (UCB), *Baileya pleniradiata*; Rodeo, 1219 m, 21-VIII-1958, P. M. Marsh, 1 ♂ 2 ♀ (MEI, UCD); 28-VIII-1959, H. E. Evans, 1 ♂ 3 ♀ (CU, USNM); 31-VIII-1951, 1 ♂ (USNM); 5-IX-1959, 1 ♀ (CU); 5 km NW Rodeo, 16-IX-1960, M. A. Cazier, 1 ♂ (AMNH); 2 km N Rodeo, 29-VII-1959, E. G. Linsley, 2 ♂ (UCB); 16-VIII-1963, M. A. Cazier, Mortenson, 1 ♂ 1 ♀ (MEI); Cotton City, 19-VIII-1979, R. M. Bohart, 1 ♀ (UCD). TEXAS. Jeff Davis County: Fort Davis, 22-VI-1947, R. H. Beamer, 1 ♀ (INHS). Reeves County: Texas A & M Research Station, Pecos, 17-VIII-1976, S. J. Merritt, 1 ♀ (TAMU), sweeping *Solanum* sp.

***Chromolepida nigra* Webb and Irwin,
NEW SPECIES**

Derivation of name.—*nigra* (Latin) = black.

Diagnosis.—Males of *C. nigra*, like *C. mexicana*, have the distiphallus moderately long and curved and the costal and subcostal cells of the wing hyaline. The males are separated from *C. mexicana* in having the distal half of the gonocoxite reduced and tapered apically in lateral view. Females of *Chromolepida nigra*, like *C. mexicana* and *C. clavitibia*, have dark brown to black halteres. The females may be separated from *C. mexicana* in having the femora dark brown to black and from *C. clavitibia* in having the fore tibia cylindrical rather than distinctly clavate.

Description of holotype male (8815).—Body length 4.7 mm.

Head: Length 0.9 mm. Ocellar tubercle black, pruinose; setae black. Eyes dark reddish brown; medial margin rounded. Frons with medial callus black, glossy, surrounded by narrow band of silver pile; setae dark brown. Antenna dark brown, pruinose; setae black; length of antenna 1.3 times head length; length of scape 0.7 mm, 7.9 times width, 4.7 times length of pedicel; length of pedicel 0.15 mm, 1.4 times width; length of flagellum 0.37 mm, 3.4 times width, 0.5 times length of scape; length of stylomere 0.06 mm. Parafacial dark reddish brown, glossy with silver pile along lateral margins. Maxillary palpus dark reddish brown, pruinose; length 0.37 mm, 7.4 times width; setae white.

Thorax: Macrosetae: np 3. Black, pruinose; pronotal setae pale yellow, filiform and scale-like. Postpronotal setae pale yellow, filiform and scale-like. Prosternal setae white. Pleura dark reddish brown, pruinose; setae white, filiform on propleuron, anepisternum and dorsal third of katepisternum, and scale-like on propleuron, anepisternum, and dorsal third of katepisternum. Scutellum black; setae silver, lanceolate, in band across posterior margin. Laterotergite dark reddish brown, subshiny; setae pale yellow. Wing. Length 3.6 mm, 2.9 times width; dark yellow, opaque, with smoky brown apical band, and at apex of discal and posterior basal cells; pterostigma absent. Halter yellow. Legs. Coxae, tibiae, and tarsi dark reddish brown, pruinose; femora dark yellow, base dark reddish brown, subshiny. Length of fore femur 1.2 mm, 1.6 times length of scape; length of fore tibia 1.2 mm, 1.7 times length of scape; length of hind femur 1.5 mm, 2.1 times length of scape. Setae white, filiform, and scale-like on coxae and femora; dark reddish brown, filiform on tibiae.

Abdomen: Tergites 1–3 dark reddish brown, pruinose; tergites 4–7 yellowish orange, subshiny; dorsal setae silver, lanceolate on tergites 1–3, lateral setae white, filiform on tergites 1–2 and scale-like.

Terminalia (Figs. 32–38) yellowish orange, subshiny. Sternite 8 moderately reduced, posterior margin slightly concave. Gonostylus with lateral hook-like projection. Dorsal apodeme of aedeagus broad anteriorly, anterior edge deeply emarginate, ventral apodeme large, attenuate, pointed anteriorly; distiphallus moderately long, bent at right angle to plane of aedeagus.

Variation in males: Body measurements for males are provided in Table 3. Length of fore femur to length of scape 1.4–2.4, 1.7 ± 0.2 (N = 20); length of fore tibia to length of scape 1.5–2.4, 1.8 ± 0.2 (N = 20); length of hind femur to length of scape 2.0–3.3, 2.4 ± 0.3 (N = 20). In some males the posterior margin of sternite 8 is more deeply emarginate than normal; the lateral projection on the gonostylus is generally slender, although it is short and hook-like in some specimens; and in specimen (8825) the anterior margin of the ventral apodeme of the aedeagus is broadly rounded, rather than attenuated and pointed.

Description of female.—Similar to male with following exceptions. Body measurements for females given in Table 3.

Head: Ocellar tubercle dark reddish brown, pruinose; setae dark brown. Frons with medial callus black, glossy, with dorsolateral circle of black pile and narrow band of silver pile lateral to antennal bases; setae absent. Maxillary palpus dark reddish brown to dark brown, pruinose.

Thorax: Macrosetae: np 3. Dark brown to black, pruinose; setae white and black, filiform, short and scale-like. Pleura dark reddish brown, subshiny, propleuron, kat-episternum, and meron pruinose. Wing. Pterostigma brown. Halter black. Legs. Dark reddish brown, pruinose.

Abdomen: Dark reddish brown, subshiny; dorsal setae silver, lanceolate, across posterior margin of tergite 1, lateral setae white, filiform on tergites 1–2 and scale-like. Terminalia (Figs. 29–31). Sternite (Fig. 30) with narrow, deep median notch posteriorly. Furca (Fig. 31) oval length 0.38 mm;

posterior margin truncate; anterior margins rounded; lateral margins curved.

Seasonal activity and distribution

In the specimens examined, adults were collected throughout the year, only from the southern half of México (Fig. 57).

Specimens examined

Type material.—The holotype male of *Chromolepida nigra* Webb and Irwin (deposited in the Illinois Natural History Survey) (M. E. Irwin Therevidae Specimen Number 8815) was collected 34 km E Villa Union on 1 February 1964 by M. E. Irwin.

Other material.—PARATYPES: MEXICO. Hidalgo: Zimpan, 8-VII-1968, M. W. Wasbauer, J. E. Slansky, 1 ♀ (UCD). Jalisco: Jocotepec, 12-13-III-1972, R. Lavigne, 1 ♀ (UWyo); 19-III-1972, R. Lavigne, 1 ♀ (UWyo); Chamela, 26-30-IX-1985, F. D. Parker, T. L. Griswold, 1 ♀ (USU); 18 km SE Tequila, 20-XII-1963, M. J. Tauber, C. A. Toschi, 1 ♀ (UCB); Plan de Barrancas, 24-III-1962, F. D. Parker, 2 ♀ (UCD). Morelos: Cañon de Lobos, Yautepec, 1219 m, 7-III-1959, H. E. Evans, 2 ♀ (CU); Xochicalco Pyramid, 29-III-1962, F. D. Parker, L. A. Stange, 2 ♂ (MEI, UCD); Yautepec, 28-III-1962, F. D. Parker, L. A. Stange, 1 ♂ (UCD). Oaxaca: 37 km S Matias Romero, 6-IV-1962, F. D. Parker, 1 ♂ (MEI). Puebla: 5 km NW. Petlalcingo, 2-IV-1962, L. A. Stange, 1 ♀ (UCD); 4-III-1972, F. D. Parker, D. R. Miller, 11 ♂ 46 ♀ (INHS, MEI, USNM); 14 km W Izucar de Matamoros, 16-IX-1972, W. Hanson, J. Poff, 1 ♂ (MEI). Queretaro: Alvarado [Queretaro], 15-II-1954, R. R. Dreisbach, 1 ♀ (MEI). Sinaloa: 18 km N Culiacán, 20-V-1962, F. D. Parker, 1 ♀ (UCD); 34 km E Villa Union, 1-II-1964, E. I. Schlinger, 1 ♀ (UCR); 87 km S Culiacán, 185 m, 23-IV-1969, M. E. Irwin, 1 ♂ (MEI), dry wash; 21 km N Mazatlan, 30-I-1964, M. E. Irwin, 1 ♂ (MEI); 24 km S Villa Union, 31-I-1964, 1 ♀ (MEI); 31 km S Villa Union, 31-I-1964, M. E. Irwin, 2 ♂ (MEI). Yucatán:

Puerto Sisal, 25-VII-1964, J. C. & D. Palister, 1 ♀ (AMNH).

Chromolepida pruinosa (Coquillett)

Psilocephala pruinosa Coquillett (1904: 91): Irwin and Lyneborg (1981a: 260).

Chromolepida pruinosa (Coquillett); Irwin and Lyneborg (1981a: 260).

Derivation of name.—*pruina* (Latin) = hoarfrost, rime.

Diagnosis.—The males of *Chromolepida pruinosa*, like *C. mexicana* and *C. nigra*, have black frontal setae, the wing membrane with brown to black band across apex of wing and apex of discal and posterior basal cells and the gonostylus with a lateral projection. The males of *C. pruinosa* can be separated from *C. mexicana* and *C. nigra* in having the costal and subcostal cells of the wing dark yellow and the distiphallus very short. Females of *Chromolepida pruinosa*, like *C. bella*, have dark yellow halteres. The females may be separated from *C. bella* in having a smoky brown to black band across the apex of the wing and the apex of the discal and posterior basal cells.

Redescription of holotype male (9218).—Body length 5.7 mm.

Head: Length 0.9 mm. Ocellar tubercle black, pruinose; setae black. Eyes dark reddish brown; medial margin sinuate. Frons with medial callus black, glossy, dorsal and lateral pile silver; setae black. Antenna (Fig. 42) dark yellowish brown, flagellum dark brown; setae black; length of antenna 1.1 times head length; length of scape 0.5 mm, 5.0 times width, 4.2 times length of pedicel; length of pedicel 0.12 mm, 1.2 times width; length of flagellum 0.34 mm, 2.8 times width, 0.7 times length of scape; length of stylocere 0.06 mm. Parafacial black, glossy with silver pile along lateral margins. Maxillary palpus (Fig. 43) black; length 0.46 mm, 5.8 times width; setae white.

Thorax: Macrosetae: np 3. Dark black, subshiny; setae dull yellow, filiform and scale-like. Postpronotal setae white, filiform

and scale-like. Prosternal setae white. Pleura black, glossy, propleuron and posterior two-thirds of katepisternum pruinose; setae whitish yellow, filiform on propleuron, anepisternum and dorsal third of katepisternum, scale-like on propleuron, anepisternum, and dorsal third of katepisternum. Scutellum black, posterior margin pruinose; setae silver, appressed, lanceolate in band across posterior margin. Laterotergite black, subshiny; setae white. Wing (Fig. 44). Length 4.2 mm, 3.2 times width; pale yellow, with smoky brown to black apical band, basal fourth of cell r_5 , and apex of discal and posterior basal cells smoky brown, costal and subcostal cells dark yellow; anterior veins dark yellow, posterior veins brown; pterostigma pale brown. Halter dark yellow. Legs. Coxae black, pruinose. Femora dark yellow, subshiny. Tibiae dull brown. Tarsi dark brown. Setae white, filiform and scale-like setae on coxae and femora, dark reddish brown, filiform on tibiae.

Abdomen: Tergites 1–5 black, tergites 6–8 dark yellow, subshiny; dorsal setae white, lanceolate, dense, appressed over tergites 1–5, lateral setae white, filiform and scale-like. Terminalia (Figs. 45–51). Dark yellowish brown, subshiny. Sternite 8 moderately reduced, posterior margin moderately concave. Gonostylus with thin lateral projection. Dorsal apodemes of aedeagus broad anteriorly, anterior margin truncate; ventral apodeme broad, anterior margin broadly rounded, anterolateral border with ventral projection; distiphallus short, reduced, sinuate.

Variation in males: Body measurements for males are provided in Table 3.

Description of female.—Similar to male with following exceptions. Body measurements for females given in Table 3.

Head: Ocellar setae absent. Frons (Fig. 52) with black, subshiny, medial callus with dorsolateral circle of black pile and narrow band of white pile lateral to antennal bases; setae absent. Parafacial callus broader than in male.

Thorax: Macrosetae: np 3. Wing. Membrane pale, opaque brown, much darker than in males.

Abdomen: Black, subshiny; dorsal setae whitish gray, filiform across posterior margin of tergites 2–3, black, filiform, moderately long on tergites 4–8 black, and scale-like on tergites 1–3, lateral setae white, filiform on tergites 1–3, black, filiform on tergites 3–8. Terminalia (Figs. 53–55). Sternite 8 (Fig. 54) rather long and narrow, posterior margin with deep median notch posteriorly. Furca (Fig. 55) subrectangular; length 0.38 mm; posterior and anterior margins broadly rounded; lateral margins rounded.

Seasonal activity and distribution

In the specimens examined, adults were collected from 8 October to 6 May with the majority of specimens collected during February, March, and April. Specimens have been collected on bean leaves, but most specimens were collected by Malaise traps. *Chromolepida pruinosa* has been collected from Nicaragua south to Colombia and east to Guyana (Fig. 58).

Specimens examined

Type material.—The holotype male of *Psilocephala pruinosa* Coquillett (U.S. Museum of Natural History, Type No. 7795) (M. E. Irwin Therevidae Specimen Number 9218) was collected at Granada, Nicaragua by Baker.

Other material.—COLOMBIA. Magdalena. 3 km E Santa Marta, 1-VIII-1973, P. A. Rauch, 1 ♀ (MEI); Santa Marta, 8-X-1971, G. E. Bohart, 1 ♀ (INHS). COSTA RICA. Alajuela. Bijagua, 7-III-1991, F. D. Parker, 1 ♀ (DEI). Guanacaste. 10 km SW San Miguel, 21-II-1991, D. W. Webb, M. E. Irwin, 11 ♂ 16 ♀ (CSDA, CSIRO, DZSA, FMNH, INHS, INIA, IOC, LACM, MEI, MPM, MSU, NSDA, PSU, SDNHM, UBC, UCVm); 22-II-1991, 20 ♂ 19 ♀ (CNC, DZSA, EEA, IML, INHS, IOC, LMM, MEI, UG, UNLP, WSU); 23-II-1991, 6 ♂ 16 ♀ (INHS,

MEI); 25-II-1991, F. D. Parker, 1 ♀ (INHS); 26-II-1991, 1 ♀ (INHS); 27-II-1991, 2 ♂ 2 ♀ (INHS); 28-II-1991, 3 ♂ 1 ♀ (INHS); 1-III-1991, 1 ♂ 1 ♀ (CSDA, INHS); 10-III-1991, 6 ♂ 9 ♀ (CNC, FMNH, INHS, MEI); 12-III-1991, 1 ♂ 1 ♀ (INHS, INIA); 13-III-1991, 3 ♂ 5 ♀ (BMH, CSDA, INHS, IRSN, NHW, NMP, NRS, PAS, UG); 14-17-III-1991, 8 ♂ 7 ♀ (ASU, BMNH, BYU, INHS, MCZ, MNH, MNHN, NMB, SMN, UTA, UZM, ZIR); 18-III-1991, 1 ♂ 1 ♀ (UCM, UCR); 19-20-III-1991, 6 ♂ 3 ♀ (AMNH, ASU, BYU, CAS, CU, MCZ, NMB, UCM, UTA); 21-22-III-1991, 7 ♂ 4 ♀ (ANSP, CAS, INHS, UCB, UCR, Uida, UWisc); 23-24-III-1991, 3 ♂ 2 ♀ (INHS, OSM, SEM, UA); 25-27-III-1991, 8 ♂ 4 ♀; 29-III-1991, 1 ♂ 4 ♀ (FSCA, INHS, IowaSU, KSU, NMSU, OSDA, OSU, TAMU, UA, UCYM, UMinn, UWyo); 31-III-1991, 2 ♂ 8 ♀ (CUS, FSCA, INHS, IowaSU, KSU, NMSU, OSDA, SEM, UCVm); 1-IV-1991, 3 ♀ (EI, INHS, RNHL); 2-IV-1991, 3 ♂ 1 ♀ (DEI, DSIR, MNHN, NMP); 3-IV-1991, 2 ♂ (IRSN, PAS); 4-5-IV-1991, 1 ♂ 3 ♀ (BMNH, CSIRO, INHS, MNH); 6-IV-1991, 1 ♂ 1 ♀ (MMB, NRS); 7-IV-1991, 1 ♂ 1 ♀ (RNHL, SMN); 8-12-IV-1991, 1 ♂ 2 ♀ (EI, UTI, ZSI); 15-IV-1991, 1 ♂ 1 ♀ (AMS, MMB); 17-IV-1991, 1 ♀ (IAS); 19-IV-1991, 3 ♂ 1 ♀ (AMS, IAS, KIK, ZIR); 19-20-III-1991, 1 ♀; 22-IV-1991, 2 ♀ (KUK, UZM); 24-IV-1991, 1 ♂ (ZSI); 2-V-1991, 1 ♂ (UTI); Palo Verde National Park, 34 km SW Cañas, 2-II-1984, S. A. Cameron, 1 ♀ (SEM); South of Cañas, 26-31-I-1989, W. L. Rubink, 3 ♂ 5 ♀ (USU); 1-3-II-1989, 2 ♂ 1 ♀ (USU); 9-14-II-1989, 4 ♂ 3 ♀ (INHS, USU); 7-10-III-1989, 1 ♂ 1 ♀ (INHS, USU); 21-25-I-1989, F. D. Parker, 2 ♂ 4 ♀ (INHS, USU); 25-31-I-1989, 5 ♂ 1 ♀ (INHS, USU); 9-14-II-1989, 3 ♂ 8 ♀ (INHS, USU); 16-20-II-1989, 4 ♂ 4 ♀ (INHS, USU); 22-24-II-1989, 2 ♂ 1 ♀ (USU); 25-II-8-III-1989, 1 ♀ (USU); 25-28-II-1989, 1 ♀ (INHS); 1-5-1989, 1 ♂ 2 ♀ (INHS, USU); 7-10-III-1989, 3 ♂ 2 ♀ (USU); 18-22-III-1989, 1 ♀ (USU); 4-6-V-1989, 2 ♀ (INHS); La Taboga Forest Reserve, 9 km SW Cañas, 17-27-II-

1987, W. L. Rubink, 3 ♂ 3 ♀ (INHS, USU); 18-20-III-1987, 1 ♀ (USU); 17-27-II-1987, 1 ♂ 9 ♀ (INHS, USU); 14 km S Cañas, 11-31-I-1990, F. D. Parker, 1 ♂ 1 ♀ (INHS, USU); 1-11-II-1990, 10 ♂ 5 ♀ (INHS, USU); 15-22-I-1990, 1 ♀ (USU); 15-24-II-1990, 1 ♀ (INHS); 1-12-III-1990, 1 ♀ (DSIR); South Cañas Experiment Station, 8-18-III-1988, F. D. Parker, 1 ♂ 1 ♀ (USU); E. J. N. Agricultural Station, 11 km S Cañas, 11-31-I-1990, F. D. Parker, 1 ♀ (USU); 14-III-1990, 1 ♀ (USU); 10 km S, 10 km W Cañas, Taboga 10° 19' N, 85° 09' W, 3-12-II-1967, 1 ♀ (USU); Hacienda La Pacifica, 6 km N Cañas, 20-21-III-1987, R. W. Thorp, 1 ♀ (UCD); 22-23-III-1987, 1 ♂ 1 ♀ (UCD). San Jose. Escazu, 24-30-I-1988, F. D. Parker, 1 ♂ 1 ♀ (USU); 1-7-II-1988, 4 ♂ 4 ♀ (INHS, USU); 7-14-II-1988, 2 ♂ 7 ♀ (INHS, USU); 14-21-II-1988, 1 ♀ (USU); 22-II-3-III-1988, 3 ♂ 1 ♀ (USU); 3-III-1988, 1 ♂ (USU); 4-7-III-1988, 1 ♂ 3 ♀ (USU); 8-18-III-1988, 2 ♀ (USU); 21-27-III-1988, 1 ♀ (BMH); 19-24-III-1988, 1 ♀ (USU); 26-III-1988, 1 ♀ (USU); 29-III-3-IV-1988, 1 ♂ 3 ♀ (INHS, USU); 1-8-IV-1988, 1 ♂ 5 ♀ (INHS, USU); 4-10-IV-1988, 1 ♂ 2 ♀ (USU); 11-18-IV-1988, 1 ♀ (USU); 16-18-IV-1988, 1 ♂ (USU); 19-24-IV-1988, 1 ♀ (USU); 25-30-IV-1988, 1 ♂ 12 ♀ (INHS, USU); 2-13-V-1988, 4 ♀ (INHS, USU); 23-26-VI-1989, 1 ♂ 3 ♀ (USU); 8-II-1987, G. E. Bohart, 1 ♀ (USU); San Pedro de Montes de Oca, -V-1987, M. Garcia, 1 ♀ (INHS); San Antonio de Escazu, -IV-1987, W. Everhard, 1 ♀ (INHS). GUYANA. Upper Rupupanni, -II-III-, Ogilvie, 1 ♀ (MCZ). NICARAGUA. Granada, Baker, 1 ♂ (USNM); La Calera, Managua, 13-III-1964, L. Saenz, 1 ♀ (USNM), on bean leaves. VENEZUELA. Aragua: Pozo Diablo Creek, Maracay, 500 m, 10-IV-1961, M. Gelbez, 1 ♀ (UCVM); El Limón, 450 m, 24-IV-1963, E. Osuma, 1 ♂ (MEI); Puerto de Cata, 10-11-VI-1976, A. S. Menke, D. Vincent, 1 ♂ 2 ♀ (MEI, USNM); 2 km N Ocumero de La Costa, 12-VI-1976, A. S. Menke, D. Vincent, 1 ♂ (USNM). Guarico: 12 km S Calabozo, 6-12-II-1969, P. & P. Spangler, 2 ♀

(USNM), blacklight. Zulia: 6 km W La Concepción, 18-VI-1976, A. S. Menke, D. Vincent, 1 ♂ (USNM); Carrasquero, 15-VI-1976, A. S. Menke, D. Vincent, 1 ♀ (USNM).

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